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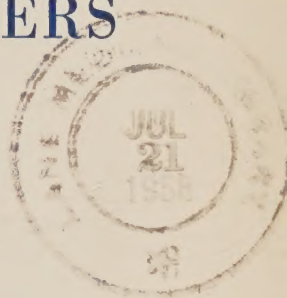
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MENTAL AND PHYSICAL
ILLNESS AMONG PAUPERS
IN STOCKHOLM

BY

GUNNAR INGHE



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Mental and Physical
Illness among Paupers
in Stockholm

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Gunnar Inghe

Stockholm, March 1958

CHAPTER 1

THE PROBLEM

INTRODUCTION

This report is part of an investigation concerning conditions of persons in receipt of public assistance in Stockholm, and of the causes of their predicament.¹ Since it is of significance in the definition of the problem, as well as in the collection of material for the present sickness survey, a short account will be given here of how that investigation was built up.

A number of questions have been studied. In what way and to what extent, for instance, do paupers differ from the general population in social, somatic and psychic respects? What are the direct causes for certain persons—even in periods of full employment—regularly requiring economic assistance from society? What was the course of events leading to their impoverishment? How do poverty and the relief situation affect the individual? And how shall one set about the practical task of preventing the relief situation from arising, and, if possible, of helping persons on relief to regain the ability to earn a living?

An important question has been the significance of illness in the relief situation. One would expect that elderly persons, the mentally or physically sick, and weak or deformed individuals would predominate among paupers. This is in itself fairly obvious, and special investigations on this point would hardly seem necessary; as will be shown later, it is principally such persons who are entitled to relief. It is of interest, however, to know the extent of morbidity among paupers, and which diseases are primarily involved. Prolonged and disabling illnesses would be expected to predominate.

The effect of the different diseases on the social status of the individual is of especial interest. The situation of an individual in society may be influenced in many ways by physical illness. Sometimes invalidity, disability and dependence on others develops. In other cases illness may cause change of occupation and reduced income, a change in dietary habits, migration (for instance in allergic illnesses) or family

¹ G. Inghe: Paupers in Stockholm. A Socio-dynamic study. Unpublished.

conflicts (for instance as a result of increased work for other members of the family, continual pain causing low spirits, changed mode of life and so on). It sometimes happens that the illness has no great effect in this connection. This may be the case in trivial or local disease or anomalies, as slight psoriasis, corrigible myopia, minor dental defects, mild hemorrhoids etc. It may, however, also be the case in serious but short-term illnesses as pneumonia, influenza and some other infectious diseases, appendicitis, nondisabling accidents etc. They cause a short period of confinement to bed and disability, but afterwards life continues, if no complications supervene, more or less as before. Such illnesses are of limited interest in an investigation of this type.

Some illnesses are of interest because they are connected with the social relations of the individual. This is the case, for instance, with venereal diseases, abortions, sterility etc. A few comparatively short-term diseases may be of interest in case of subsequent complications or relapse. A short attack of rheumatic fever may, for instance, be related to a valvular heart disease diagnosed several years later. Or a brief attack of hyperpyrexia may be associated with suspected postencephalitic symptoms.

Inquiries about early symptoms of hitherto undiagnosed diseases, which is the aim of health control, has, on the other hand, been considered of little importance in this connection. If an individual feels quite healthy and is working full time, it is of little importance in the elucidation of his previous development and his present situation, whether he is really healthy or is suffering from such an early stage of illness that no subjective symptoms have been manifested as yet, however important this question may be for his future.

Regarding mental disorders and mental qualities in general, it is more difficult to make distinctions of this type. Even minor mental aberrations may have important consequences for the individual in his contact with other people, adjustment at work, ability to earn a living, etc.

In the investigation, consequently, an attempt was made to obtain as good a picture as possible of the somatic and psychic development of paupers. Special attention was paid to illnesses which caused prolonged disability or otherwise influenced their social status. It was considered particularly important to illuminate the present state of health and its social consequences.

Thus in the collection of material certain data must be included on previous and present illness in the pauper population. This sickness

survey does not, however, refer to the total morbidity for reasons mentioned already. The limitations will be defined in greater detail later.

Parallel to the sickness survey it was necessary to gather an extensive material on the childhood conditions of the paupers, the development of family relationships, education, occupation, migration, economic development, the occurrence of asocial conduct, vagrancy, abuse of alcohol etc. The simultaneous collection of a large amount of such data could not but affect the methods used in the sickness survey. The medical examinations could not be made so comprehensive and thorough that they jeopardized the possibility of obtaining other data included in the survey programme. Too detailed questioning would also have fatigued the patients and increased the number of refusals. Expediency was required here to obtain a balance between the different parts of the survey programme.

REGULATIONS REGARDING PAUPERS

When the first measures of assistance were given through other agencies than near relatives—among the ancient Jews to some extent through the Synagogues, during Roman times in the form of free distributions of food etc.—they were directed in the first place to the aged and sick and also orphans (Gillin 1937). The same has applied later. Sometimes the regulations have been very precise. In a Swedish statute 1642 there were directions, for instance, on taking charge of orphans, sick, aged, “possessed” or infectious persons who had no relatives (Betänkande 1839). The Poor Law of 1853 referred to persons “who, on account of their inability to work, disablement or sickness, are not in a position to support themselves” (according to Fattigvårdslagstiftningskommittén 1915). In the Public Assistance Act 1918, which was still in effect when the material for this survey was collected, it was prescribed that any destitute minor, aged, infirm, disabled or feeble-minded person incapable of maintaining himself by gainful employment, was entitled to support if his needs could not be relieved by other means. The Social Assistance Act passed in 1955 refers to the same categories (see Bill 177, 1955).

Similar regulations are to be found in other countries at various times. Thus there is, on the whole, agreement concerning these categories (cf. Gillin 1937).

Even in ancient times, however, the poor and unemployed were

regarded with mistrust. In the time of Justinianus (500 A.D.) there were complaints about "strong men and lazy vagabonds" taking assistance instead of the really poor (Geijer 1839). In olden times also, regulations on relief were drawn up with the intention of preventing abuse. In the law-rolls of the Swedish Provinces in the Middle Ages it was definitely suggested that the aim of certain regulations was to induce unemployed persons to commence work (Betänkande 1839). During the Middle Ages begging became more and more common. The Reformation in Sweden brought a reaction against this. One should never, by giving alms, lead a person to fail in his duty of self-support. By and by, says Höjer (1952), people almost equated poverty with laziness or disinclination to work. Numerous regulations against begging were also introduced in various countries. In the English Poor Law 1536 it was declared that sturdy beggars should be punished and driven away. Vagabonds should be whipped, sat in the stocks or put to work in a workhouse (Gillin 1937). Also in Sweden during the Sixteenth Century there were instructions that unemployed persons should be put to work. The bailiffs should take care of beggars, and not let them "go and lie". In the Beggar Regulations 1642 begging was forbidden except for the maimed and sick. "Vagabonds and tramps" overpowered by laziness and weakness should be seized and "driven to the nearest castle, there to work in irons" (see Fattigvårdslagstiftningskommittén 1915). According to the law governing the relations of masters and servants during the second half of the Seventeenth Century, unemployed persons capable of working could be treated as vagabonds.

Even during the Eighteenth and Nineteenth Centuries the treatment of the poor was very harsh. The poorhouses were miserable. Different kinds of begging were practised. Outdoor relief was exceptional. Later, when unemployment became more widespread, particularly in times of bad harvest, workhouses were set up (Höjer 1952). In the Poor Law 1809 it was laid down that persons "who own the ability to work" should "be put in a position where they are forced to use this". Even subsequent Poor Laws prescribed that the able-bodied, destitute unemployed should be provided with work (Betänkande 1839). The direct duty of assisting the poor was first established in the Poor Laws of 1847 and 1853. These did not, however, apply to the unemployed who received special assistance first in connection with the difficult situation at the outbreak of the Great War 1914. Then emergency measures and cash payments from state grants were commenced (Höjer 1952). Later unemployment relief was regulated by special

decrees. In accordance with these, assistance to the unemployed was organised through local unemployment committees. Those entitled to help have been "the involuntarily unemployed who have lead a proper and sober life but have not succeeded in obtaining work suitable to their strength and ability".¹ In the Public Assistance Act 1918 the public assistance committee was instructed to co-operate with the employment exchanges in order to find work for applicants capable of working. Compulsory poor relief, which the local authorities were obliged to supply if it were required, could not in fact be paid to the unemployed unless his ability to work had been reduced; but it could be given to his children and disabled members of his family. Even poor relief supplied voluntarily by the local authorities could not be paid to the unemployed. The fact that this occasionally happened seems to have been due to good will on the part of the local authorities (Linders 1943). In the Social Assistance Act 1955 no changes have been made in this respect; perhaps the local authorities have more powers than previously to provide voluntary social assistance.

The 1918 Act also stated that relief should not be supplied to those whose necessity had been caused by strong drink or unwillingness to work, or when there was reason to believe that the relief would not be properly used. Just as previously, therefore, the abuse of relief measures provided by society is still a problem. In testing the applicant's needs his information is checked by medical certificates and information on wages etc. Sometimes, if the applicant himself does not provide adequate proof, information is even obtained by questioning the landlord, employer etc. In the report on social assistance 1950, it is true, the idea of special regulations for asocial cases was rejected; but it was proposed, none the less, that when the need for assistance arose as a result of bad housekeeping, unwillingness to work and so on, the recipient was liable to repayment (Statens offentliga utredningar 1950). In the new Social Assistance Act this division of the clientèle into different categories was not accepted. It was feared that it would "lead to a division of the recipients of social assistance into two groups, those who were entitled to help without being liable to repayment, and the others, which would be unfortunate from the psychological point of view". There remain, however, the prescriptions on checking up with various authorities and individuals who can give information on the person in question (cf. Bill 177, 1955).

Naturally the regulations referred to here have largely defined the

¹ See e.g. Kungl. Maj:ts Kungörelse no. 419, 1922, and no. 466, 1933.

composition of the pauper population, and are certainly based on observations of which people it is who cannot manage for themselves; they are thus empirically determined. So far then, there exists since ancient times experience of the poorest people roughly divided into categories.

PREVIOUS SURVEYS

Systematic research concerning paupers and impecunious persons is of comparatively recent date. In various connections scattered observations have been made on the composition of the poor. They are of no great interest in this connection. More exact research in this field commenced with Charles Booth's survey in London during the years 1886-1902. A number of investigations of the extent of poverty, the composition of the pauper population etc. have followed. No historic survey of this literature will be made here. Instead a short account will be given of the results obtained in these surveys in so far as they concern the state of health and mental conditions of paupers.

Sex and Age

Women have generally predominated among paupers. According to the first known Swedish figures from the 1870's, there were about twice as many women as men (Andersson 1915). At the beginning of the century the paupers in Stockholm consisted of about 40 per cent adult women, 20 per cent adult men and 40 per cent children under 16. These proportions seem, on the whole, to have remained constant until the end of the twenties, with a continual decrease, however, in the number of children. During the early part of the thirties the number of paupers increased rapidly on account of the widespread unemployment, and the relative proportion of men rose steeply. In 1933 there were even somewhat more men than women on relief. When unemployment subsided during the latter part of the thirties there were again considerably more female than male paupers. Following the increase in nativity after 1935, the number of children in receipt of relief have shown a relative increase. Towards the end of the forties and during the fifties the proportions between the sexes have again shown a tendency towards evening out, despite the very low level of unemployment during recent years.

In other countries also female paupers predominate (cf. Statens offentliga utredningar 1941).

In most analyses concerning the poor, elderly persons are quite naturally over-represented. In an English survey from the beginning of the century, for instance, it was shown that in the ages 65–75, 16 per cent were on relief, and in the ages 75–85, 28 per cent, while in the ages 25–35 only 0.7 per cent received public assistance (Silverman 1925). Similar information is available from other regions (see the survey of the literature in Gillin 1937) and is in agreement with Swedish experience (Andersson 1915, Statens offentliga utredningar 1941 etc.). Rowntree (1941) showed that in York in 1936 about half of the children, about a quarter of all adults and nearly half of the persons over 65 lived under a certain minimum standard. The large number of poor children was due to the fact that families with many children had the greatest economic difficulties. Then, with advancing age, more and more must seek assistance.

Physical Illness

As illness is one of the most important indications for relief it may seem natural that the majority of paupers are ill. In different surveys, however, highly varying figures have been obtained (cf. e.g. early American reports in Devine 1909 and Pear 1925). This is probably related to the different composition of the clientèle (e.g. in the public assistance and the private assistance organisations respectively), and to changing social conditions (e.g. the varying extent of unemployment at different periods, or dissimilar economic conditions in various countries). It may also be related to differing practice in relief administration and dissimilar bases of judgement (illness may in individual instances be considered of greater or less importance in comparison with other causative factors).

In Sweden the morbidity for adult paupers has generally been rather high: in 1908, for instance, it was 26 per cent (according to Andersson 1915), and in 1928 it was 80 per cent (according to Jacobsson 1934). In the official statistics both the methods of recording and the frequencies vary considerably. Generally an attempt has been made to draw a distinction between disability due to illness and to old age. These two factors together during the first part of the twentieth century were responsible for 70–80 per cent of all causes of outdoor relief in Stockholm. Later unemployment in particular increased in importance. Illness or old age in 1930 were indicated as the most important cause of the need for relief in more than 60 per cent of the cases, but for only 22 per cent in 1933. In the latter year unemployment and low income were

instead the main cause in 73 per cent of those entitled to relief. In 1938 illness or old age had again increased in importance; about 55 per cent of the cases were then due to this. (See Stockholm Statistics, Public Assistance 1904–1938.) These summary statistical divisions must, however, be judged with caution (cf. the criticism of method which, in this respect, was made by Carlsson 1954).

Most of these surveys suffer from the weakness that comparable data on morbidity in the general population has not been given. In some surveys, however, comparisons have been made with the situation of persons who are not in receipt of relief (see Bigelow & Lombard 1933, the National Health Survey in the U.S.A. 1938, Britten *et al.* 1940, Britten & Altman 1941, Britten 1942, and others) and they have found higher morbidity among paupers. According to Phelps (1947) illness has been found on the average to be nearly twice as frequent in families on relief as in families with an adequate income. The periods of illness have also been more prolonged.

Investigations of the relationship between illness and economic conditions have been more numerous. It has long been observed that mortality is usually higher for the poor than the well situated. Also Marx cited a number of investigations which showed that life was far shorter for the working class than for the wealthy classes. Booth (1891–1902) some decennaries later in London, and Rowntree (1901) in York, observed that mortality in different residential areas varied with the number of poor persons. Even in later surveys there has regularly appeared a strong relationship between high mortality or morbidity and poverty or low social class (see the literature survey in e.g. Collins 1927, Sydenstricker 1929, 1933, Dahlberg 1937, Britten *et al.* 1940, Sand 1952, Leavell & Clark 1953). Rowntree in 1936 found that a clear tendency towards equalization was evident in comparison with the situation in 1901. However mortality still seems to lie at different levels in different social strata. In England and Wales, for instance, mortality in 1950 was still highest among unskilled workers (Logan 1954). The difference between the social groups was, however, more irregular in this survey than in earlier ones. It is true that mortality rose from social class I, “professionals” etc., to V, “unskilled workers” (cf. table 1), but was not quite regular. In a survey in London Martin (1955) found that there was still a significant correlation between mortality and certain socio-economic conditions (over-crowding, low social class). Selective factors, however, probably play some part.

Also infant mortality is higher among the poor (see the analyses made by Woodbury 1926, Collins 1927, Rietz 1930, Sydenstricker 1933, Dahlberg 1934, Sand 1952, Brockington 1953, Logan 1954, Illsey 1955, Daley *et al.* 1955, and others). The steep decrease in infant mortality in various countries seems, however, to have reduced the differences between the social classes in this respect (Altenderfer & Crowther 1949, Brockington 1953, and others). In London, for instance, Martin (1955) compared infant mortality in several censuses and ascertained that the large differences between the social classes in 1911–13 had almost been eliminated in 1950–52, particularly regarding neonatal deaths; a significant relationship between postneonatal mortality, over-crowding and social class could still be demonstrated, anyway for the large towns. The incidence of still-births and prematurity are also higher in the low income groups than among the well-to-do (see Collins 1927, Rietz 1930, Gyllenswärd 1946, Brockington 1953, Logan 1954, and others). Birth weight is also lower, on the average, in children in the lower than in the higher social strata (see e.g. Koch 1955). In deaths due to birth injury or malformations the relationship with low social strata is far less or non-existent (Woodbury 1925, Logan 1954). In Sweden Jacobsson (1934) also found rather high morbidity and mortality figures for children of paupers; this data is, however, more difficult to compare with the corresponding situation in the general population.

It may be pointed out that illness can be a cause as well as an effect of poverty (cf. Bruno 1931, Phelps 1947, Lawrence 1948, and others). Regarding adults it is clear that sick persons who are no longer able to work risk becoming poor, unless they have wealthy or helpful relatives. There is no doubt, however, that poverty may also indirectly cause illness, or at any rate entail an increased risk of illness; in the same way illness that is already present may change for the worse as a result of deprivation due to poverty. Perrott and Collins (1935) considered, for instance, that they had proved that families which at the beginning of the thirties were unemployed, and had been very poor, tended to have more illness than other families. Selective factors (e.g. that the handicapped ran a greater risk of becoming unemployed) could, however, not be entirely excluded.

In a follow-up study in 1943 of families in Hagerstown which had been investigated for the first time in 1923, Lawrence (1948) found, however, that "socio-economic status is a factor, but of only slight importance, in the chances of occurrence of chronic illness"; "chronic disease is a more significant factor in causing reduced socio-economic

TABLE 1. *Standardized mortality ratios (recorded deaths in per cent of calculated deaths) of men and married women aged 20-64 in England and Wales by cause and social class, 1921-23, 1930-32 and 1950 (according to The Registrar General's decennial supplement 1921, 1931 and 1951.)*

Class I Professional etc. occupations
 Class II Intermediate occupations
 Class III Skilled occupations
 Class IV Partly skilled occupations
 Class V Unskilled occupations

The records in the Register General vary somewhat from year to year, and completely uniform data cannot therefore be obtained. Most of the information has been taken from tables 4, 5, 10 and 11 for the year 1951, but also other tables from the three reports have been used. Ratios calculated upon less than 50 deaths are given in italics, and those calculated upon less than 10 deaths are enclosed in brackets.

Causes (in parenthesis international list no.)	Years	Social class									
		Men					Married women				
		I	II	III	IV	V	I	II	III	IV	V
Tuberculosis of respira- tory system (001-008)	1921-23	49	81	95	97	137					
	1930-32	61	70	100	104	125	52	67	99	106	132
	1950	64	62	103	95	149	43	52	104	107	166
Syphilis (020-029)	1921-23	69	86	90	90	129					
	1930-32	73	67	101	100	136	48	55	91	98	147
	1950	77	52	107	102	139	(50)	67	88	129	165
Malignant neoplasm, all sites (140-204)	1921-23	90	92	99	96	123					
	1930-32	83	92	99	102	115	96	97	101	95	106
	1950	96	84	105	94	110	115	90	103	95	107
buccal cavity and pharynx (140-148)	1930-32	72	68	93	110	146	59	80	104	119	100
	1950	157	90	96	100	110	(117)	67	110	140	62
esophagus (150)	1921-23	76	91	104	88	130					
	1930-32 ^a	74	87	98	94	130	(95)	84	101	95	116
	1950	150	85	97	94	120	(80)	54	104	86	174
stomach (150)	1921-23	60	82	100	106	130					
	1930-32 ^a	55	83	98	112	122	49	77	105	106	121
	1950	57	67	100	114	132	57	72	101	106	138
intestine (152, 153)	1921-23	116	107	99	90	99					
	1950	123	100	105	85	94	103	100	97	104	106
rectum (154)	1921-23	93	102	102	96	98					
	1930-32 ^a	89	103	103	97	98	100	97	105	86	106
	1950	74	90	109	101	87	110	92	101	114	90

Table 1 (continued)

Causes	Years	Social class									
		Men					Married women				
		I	II	III	IV	V	I	II	III	IV	V
larynx (161)	1921-23	72	96	93	96	135					
	1930-32	60	81	98	90	143	(55)	115	95	104	102
	1950	(113)	70	110	93	115	(0)	118	100	120	(100)
lung and bronchus (163)	1921-23	100	109	97	79	124					
	1930-32	107	95	100	92	114	95	100	108	81	94
	1950	80	79	108	89	116	120	94	104	96	91
breast (170)	1930-32						136	116	103	84	82
	1950						144	100	106	76	97
cervix uteri (171)	1950						61	69	98	109	150
corpus uteri (172)	1950						142	85	105	81	112
ovary, Fallopian tube and broad ligament (175)	1930-32 ^a						143	116	102	77	83
prostate (177)	1921-23	110	110	103	79	86					
	1930-32 ^a	111	98	106	88	106					
	1950	119	91	106	89	101					
kidney (180)	1921-23	69	106	100	94	88					
	1930-32 ^a	150	123	94	74	106	(200)	98	93	90	105
	1950 ^b	147	77	114	79	99	157	86	98	105	113
skin (190)	1921-23	63	73	100	120	150					
	1930-32	—	74	95	114	131	—	87	94	105	129
leukemia (204)	1930-32	153	125	96	94	85	167	118	107	76	76
	1950	153	101	107	81	88	145	73	110	91	95
Asthma (241)	1930-32	63	93	102	105	106	—	92	106	98	103
Thyrototoxicosis (252)	1930-32 ^a						115		102	106	69
Myxedema (253)	1930-32 ^a						59		93	89	196
Diabetes mellitus (260)	1921-23	125	145	92	75	66					
	1930-32	122	155	95	82	69	56	89	104	108	106
	1950	167	97	97	91	108	86	88	98	109	117
Vascular lesions affect- ing central nervous system (330-334)	1921-23	88	103	100	94	108					
	1930-32	112	106	100	96	97	75	90	101	107	109
	1950	123	102	104	81	100	112	91	100	103	107

Table 1 (continued)

Causes	Years	Social class									
		Men					Married women				
		I	II	III	IV	V	I	II	III	IV	V
Chronic rheumatic heart disease and chronic endocarditis, valvular disease of the heart (410-416, 421)	1921-23	59	90	96	106	126					
	1930-32	65	92	97	111	112	56	82	99	114	119
Chronic rheumatic heart disease (410-416)	1950	61	87	103	102	114	63	62	102	118	135
Chronic endocarditis, not specified as rheumatic (421)	1950	54	77	107	103	112	(150)	61	107	103	114
Arteriosclerotic heart disease (420)	1930-32 ^c	237	148	95	66	67	157	126	93	85	88
	1950	150	110	104	79	89	92	93	101	100	108
Myocardial degeneration (422)	1930-32 ^c	77	92	94	105	122	54	75	99	110	129
	1950	67	82	97	98	137	66	67	98	120	134
Hypertension with heart disease (440-443)	1950	114	91	105	87	106					
Hypertension without heart disease (444-447)	1950	164	103	100	83	98					
General arteriosclerosis (450)	1930-32 ^c	100	90	97	99	119	94	89	96	86	128
	1950	113	82	100	89	129	(80)	86	90	129	125
Influenza (480-483)	1921-23	84	94	93	112	118					
	1930-32	95	101	94	107	105	102	101	97	100	104
Pneumonia (490-493)	1921-23	85	84	90	107	150					
	1930-32	71	80	91	109	139	72	77	96	105	133
	1950	43	63	97	106	157	69	75	98	110	138
Bronchitis (500-502)	1921-23	26	55	94	121	177					
	1930-32	31	57	91	124	156	27	56	99	119	155
	1950	33	53	97	103	172	33	48	100	130	152
Ulcer of stomach (540)	1921-23	72	87	96	105	127					
	1930-32	55	76	99	109	127					
	1950	56	81	97	99	144	(60)	93	96	124	100
Ulcer of duodenum (541)	1921-23	126	109	91	93	113					
	1930-32	101	106	99	93	107					
	1950	105	78	106	82	126	(100)	68	91	133	131

Table 1 (continued)

Causes	Years	Social class									
		Men					Married women				
		I	II	III	IV	V	I	II	III	IV	V
Appendicitis (550-553)	1921-23	180	143	92	83	73					
	1930-32	181	140	98	80	76	140	117	103	82	83
	1950	123	110	101	79	102	(67)	103	89	104	143
Hernia of abdominal cavity (560-561)	1921-23	58	81	97	115	129					
	1930-32		80	98	119	112	36	63	95	123	157
	1950	(14)	92	100	132	100	(60)	76	86	146	145
Cirrhosis of liver (581)	1910-12	139	173	80	78	105					
	1921-23	163	187	66	74	87					
	1930-32 ^d	184	195	70	78	75	168	148	85	83	78
Cholelithiasis and diseases of gallbladder (584-586)	1930-32 ^a	162	159	92	79	66	104	101	97	110	101
Nephritis (590-594)	1921-23	97	111	96	89	105					
	1930-32	119	119	96	90	97	74	92	99	102	115
	1950	128	93	101	87	112	85	92	100	107	108
Hyperplasia of prostate (610)	1921-23	114	122	102	80	91					
	1930-32	133	115	97	95	90					
	1950	92	109	101	97	95					
Arthritis and rheumatism, except rheumatic fever (720-727)	1930-32	90		98	115	103	91		102	106	103

^a Ages 35-64 only. Ratios based on less than 20 registered deaths are shown in brackets.

^b Inclusive bladder and other urinary organs.

^c In men ages 35-64 only.

^d In women ages 35-64 only.

status" than the contrary. Despite the many statistical data which have been put forward in various connections, it would seem, then, that the question of the nature of the relationship between economic level and morbidity is still inadequately elucidated. Lawrence & Tibbitts (1951) have stated that further "long-term morbidity studies" should be devoted to this problem.

There is varying information on which illnesses in particular pre-

dominate among the poor. It is often difficult to draw definite conclusions from the figures given, since corresponding data on the general population is lacking. Surveys of the extent of various illnesses in different income groups or social classes are therefore of particular interest. The most detailed information of this type originates from the English mortality statistics; these statistics have been used by many authors (see Collins 1927, Britten 1928, Sand 1952, Warren 1953, Logan 1954, Ström 1956, and others). In table 1 an account has been given of the distribution of various causes of death according to social classes based on these English sources.

It appears from the table that for certain illnesses there is throughout a high mortality in the lower social classes. This applies to tuberculosis, for instance. It has long been known that tuberculosis mortality decreased steeply when real wages and living standards rose (cf. Scheel 1931, Galtung-Hansen 1932, and others). Tuberculosis mortality in different occupational groups has been investigated and the mortality for manual workers, particularly unskilled or low-paid workers, found to be high (see Scheel 1931, Faber & Lindhardt 1935, Dahlberg 1937, Berg 1944, Downes 1948, Leff 1950, and others). Similarly higher tuberculosis mortality figures have been found in working class areas where very poor people live than in more prosperous districts (see Dahlberg 1937). In the National Health Survey in the U.S.A. tuberculosis was found to be among the diseases with the most pronounced relationship to poverty (according to Collins 1940). Diet is considered to be of significance; during both world wars tuberculosis mortality increased in many countries (Sydenstricker 1933, Faber 1938, Lundquist 1944, Berg 1949, Collins 1952, and others). It was particularly noticeable in extreme starvation, as among the Russian prisoners of war in Germany (Leyton 1946), and in concentration camps (Helweg-Larsen *et al.* 1952). Such an increase in tuberculosis mortality in extremely bad nutritional conditions and very low income groups had even been observed earlier (see Prinzing 1906 cited by Sydenstricker 1933, Schereschewsky 1914, and others). In Norway, where the decrease in caloric intake during the World War 1939 was more moderate, there was, according to Malmros (1950), no increase in tuberculosis mortality.

According to the table bronchitis and pneumonia are also more common as a cause of death in low than in high social classes. It is known from other investigations that the same applies to morbidity for these illnesses (see Sydenstricker & Wiehl 1924, Downes 1948, and others). Also among children diseases of the respiratory and digestive

systems and infectious diseases have been most widespread in low income classes. Some levelling out seems, however, to be taking place. In certain studies it has been demonstrated that the occurrence of infections in young children is more closely related to the number of siblings and the age of the mother than to the social class of the father (Lowe & McKeown 1954, and others).

Even ulcer of the stomach seems to be more frequent as a cause of death in the lower social strata, anyway among men, while on the other hand no such definite variation in regard to social class occurs in ulcer of the duodenum (cf. also Brockington 1953). A number of investigations point to the same situation regarding morbidity for these illnesses (Morris & Titmuss 1944, Stewart *et al.* 1955, Jones 1955, and others). It is widely known that the occurrence of ulcers varies in different occupational groups (Alsted 1942, 1954, Schanke 1949).

Regarding cancer as a cause of death, it is apparent from the table that the situation varies. Certain forms of cancer seem to be more widespread in lower social strata. Such is the case, for instance, with cancer of the stomach both as a cause of death and, according to various morbidity studies, also of illness in some countries (Stevensen 1927 cited by Ahlström 1944, Collis 1928 cited by Sydenstricher 1933, Hurst 1939, Clemmesen & Nielsen 1951, Cohart 1954, and others). According to Stevensen, besides cancer of the skin in certain occupations, also cancer of the mouth, larynx and esophagus are more frequent in the working class than in higher social classes (in table 1 the tendency for 1950 was not quite clear). It has also been pointed out that cancer of the lungs seems to be more common among men in "dusty trades and occupations" than in "clerical" and "professional" work, which would not be related to differences in smoking habits (Cohart 1955, Kreyberg 1955). Also cancer of the cervix uteri (cf. table 1) is more frequent in the lower strata of society, while the contrary is the case in cancer of the corpus uteri and of the breast (Bredland 1952, Clemmesen 1952, Brockington 1953, Stocks 1955, and others). Cohart (1955) found, however, no connection between cancer of the cervix uteri and socio-economic situation; on the other hand cancer of the breast and possibly also of the ovary were more common in higher social strata.

It is apparent from the table that several other illnesses also seem to be more frequent as a cause of death in the lower strata of society, e.g. valvular heart disease, myocarditis, abdominal hernia etc. In the National Health Survey in the U.S.A. hernia was found to be the disease which was most over-represented among poor people and paupers (Brit-

ten *et al.* 1940). Rheumatism as a cause of death does not seem to vary to any great extent in different social groups. On the other hand it is known from other surveys that rheumatic illness is more common among the poor than among the well-to-do (see Hench *et al.* 1936, Britten *et al.* 1940, and others).

Other illnesses seem to be more frequent as a cause of death among the well-to-do. This is the case, according to table 1, with leukemia, for instance (cf. also Meadors 1956), diabetes in men (cf. also Brockington 1953), cirrhosis of the liver and cholelithiasis (cf. also Mårtensson 1937) and coronary sclerosis (cf. Logan 1952, Brockington 1953). Also morbidity in coronary sclerosis is highest in the high social groups, in any case among men (see Morris *et al.* 1953, Biörck *et al.* 1954, and others) while myocarditis is most frequent in the lower social groups. Coronary sclerosis seems to be far less common in the so-called underdeveloped countries than in the economically more advanced countries in the West (see Key & White 1956, and others). This has been ascribed to different dietetic habits, differences in mental stress and physical activity etc. Different diagnostic practice in the respective strata has also been advanced as a cause (cf. Logan 1952, Hansen 1957, Lilienfeld 1957, and others). These differences have not been confirmed in all investigations. In the National Health Survey in the U.S.A. diabetes was most common among the poor and also increased among paupers. In Baltimore, Lilienfeld (1957) found only slight differences in mortality from arteriosclerotic heart disease in different social classes, while on the other hand mortality in myocarditis increased the further down in the social scale one came. Arteriosclerosis, coronary sclerosis and diabetes declined temporarily during the last world war (Malmros 1950, Strøm & Rygh 1952, Biörck 1956, and others). It was assumed that this was due to changed dietetic habits; the observations are, however, difficult to interpret, and the connection is probably still not fully elucidated.

As is apparant from the table, appendicitis is one of the illnesses which, any way earlier, was more frequent as a cause of death in the higher classes in society and declined in frequency the lower in the social scale one came (see also Brockington 1953). The same experience has been obtained regarding morbidity for appendicitis (Stewart *et al.* 1955, and others; see also Petrén 1943, 1944).

Some illnesses have varied in different surveys; for many no correlation has been found with social class.

Many such investigations have been made of various illnesses with

differing results. This uneven distribution in the population of both causes of death and certain illnesses has been explained in different ways. It has been related to alterations in living conditions, working conditions and fertility etc. Differences in regard to the discovery and diagnosis of illness have, however, also been adduced as a reason. There is no reason here to go further into this literature. From these and similar surveys, namely, no definite conclusions can be drawn on the situation among paupers. These represent a selection, composed of persons who can no longer maintain themselves because, among other things, of illness. It is very possible that among paupers there is an excess of disabling illnesses which in the general population do not show any direct relationship to social class or economic level. Inversely it may also be possible that the illnesses which are comparatively common in lower social strata are not particularly frequent among paupers, since capacity for work is not greatly affected, or the illnesses are transient or rapidly lead to death.

Only direct investigations of paupers can therefore be decisive. According to an investigation in Stockholm 1932 the commonest illnesses among paupers on outdoor relief were, in order of frequency, rheumatism, tuberculosis and disablement. These illnesses together occurred in 19 per cent of all sick paupers (see Stockholm Statistics, Public Assistance 1932). Jacobson (1934) found that the so-called diseases of old age, diseases of the circulatory system and organs of movement were most common. According to Rülcker (1942) also, diseases of old age dominated, and after that, in order of frequency, diseases of the circulatory system and nervous system, infectious diseases (especially tuberculosis) and diseases of the organs of movement. In these investigations, however, comparisons between morbidity ratios for paupers and the general population were not made. In the National Health Survey in the U.S.A. it was found that morbidity was throughout higher among paupers than among persons on relief. The increase was highest for hernia, tuberculosis, varicose veins, blindness and deafness, rheumatism and allied diseases, and surprisingly enough, also for diabetes (Britten *et al.* 1940). Teilmann compared paupers with the general population also (1954). He then found that there was a conspicuously large number of worn-out women among the paupers. Also diseases of the organs of movement were more frequent, particularly arthrosis deformans. In women obesity and hypertension were common. In men ulcer of the stomach was far more frequent in paupers than in other people. On the other hand tuberculosis and heart diseases were

not particularly frequent (in Denmark pensions were probably often given in these illnesses).

Thus from these surveys it seems that especially prolonged and chronic illnesses dominated in paupers. Apart from tuberculosis, it was illnesses which in the first hand occur among elderly persons which seemed to be frequent. Lawrence (1948) also states that all morbidity surveys show that "the prevalence of chronic disease increases with poorer socio-economic status".

Mental Illness

The extent of mental disorders in the different social groups has long been the subject of discussion (cf. the historical survey in Hare 1952). Stern (1913, 1925) and Nolan (1918) thus observed in hospital material that schizophrenia was more frequent than manic-depressive psychosis in manual workers, craftsmen and small tradesmen, while among salaried employees, business men etc. manic-depressive psychoses was equally or more frequent (cf. Tietze *et al.* 1941). From American statistics (1933) it appeared also that schizophrenia was over-represented among "dependent" persons, while manic-depressive psychosis was about equally frequent among "comfortable" persons (according to Tietze *et al.* 1941). In other surveys patients in mental hospital (apart from the manic-depressive cases) were found to come from poor and slum areas to a greater extent than from the well-to-do residential areas (cf. Faris & Dunham 1939, Jaffe & Shanas 1939, and others). In a field investigation in Baltimore covering all institutions for mental disorders, an inventory was made of cases which had been treated during the year. Both psychosis and neurosis frequencies were found to be higher among the poor than the well-to-do (Lemkau *et al.* 1941, 1942, 1943). In a comparison of paupers and persons not on relief it was found that psychosis, neurosis, psychopathy and behaviour problems in children were more frequent among the former (Tietze *et al.* 1942). Clark (1948, 1949) pointed out that in some of the previous surveys no consideration had been paid to the different age distribution in the respective occupational groups, which made it difficult to draw definite conclusions. He investigated 12,000 men in Chicago at their first admission to a mental hospital during the years 1922-34, and showed, after correction for age, that the prevalence of schizophrenia, senile psychosis, alcoholic psychosis and general paralysis increased in inverse proportion to income, while the correlation was almost 0 in manic-depressive psychosis.

According to Redlich, Hollingshead and their collaborators also, mental disorders were considerably more widespread in lower than in higher strata of society. Their material covered all patients undergoing treatment in a 5 per cent sampling of the population of New Haven. Since it was assumed that readiness to consult a physician would be greater in the higher than the lower social strata, it was considered that the psychiatric morbidity among the poor would be even higher than what appeared from the figures. The difference between the illnesses was marked; neuroses were far more common in the higher and psychoses, particularly schizophrenia, in the lower social strata. The low neurosis frequency in the lower social strata might, however, have been due to neurotic persons in these social strata refraining from consulting a doctor; psychotherapeutic methods had been used in a very limited extent in these cases (cf. also Myers & Schaffer 1954). In later reports it has been stated that neuroses which were expressed behaviourally in the community or somatically had the highest treated prevalence in the lower social strata; while the more subjective, introspective, verbal neuroses, tending to act out, if at all, within the family unit, characterized the higher social strata (Freedman & Hollingshead 1955, 1957).

English surveys of hospital patients (Hare 1955, Carstairs *et al.* 1955) showed also that schizophrenia was more frequent the further down in the social scale one came. Manic-depressive psychosis and neurosis showed the same trend, but to a much smaller extent. Ødegaard (1956) found that occupations with a low standard of practical and theoretical training and low social prestige had the highest admission rate, while the level of income was somewhat less decisive. It was suggested that the statistical findings were best explained as resulting from a social selection, determined by pre-psychotic personality or early and undiagnosed symptoms. This seemed to be most evident for schizophrenia and for psychoses combined with epilepsy and mental deficiency, while manic-depressive psychosis appeared to be rather more common in favoured occupational groups, and general paralysis and alcoholic psychoses had a pattern of their own, dependent upon group customs.

Hare (1955) pointed out, however, that surveys of this type refer to a selection, and asked for "true prevalence studies" covering a whole population. It is clear also that there must be many sources of error in a survey of this type. One of the factors Hare drew attention to was that well-to-do schizophrenia patients go in and out of hospital more often than poor patients, and in a survey which refers to a certain point

of time (as e.g. in Hollingshead's and Redlich's survey) some of these cases would not have been included. If the survey covers a longer period this source of error is reduced. Many well-to-do persons are, however, cared for outside hospital for long periods, and thus only enter the surveys which include discharged patients. Possibly there is also a tendency in higher social classes to arrange for milder cases of mental disorder in other ways than through admission to mental hospitals; such cases would thus completely elude inventories which are based on the general mental institutions. Certain surveys have also come to deviating results. In a survey in Hagerstown based on first admissions to mental hospital, schizophrenia did not show any significant differences among the five socio-economic strata (Clausen & Kohn 1957).

Some surveys of material drawn at random from the population have also been made. Neustatter (1938) investigated a number of families drawn at random from three areas in London which were characterized as "poor", "better" and "well-to-do". He found more children with nervous symptoms in the well-to-do than in the poor families. The survey was, however, not free from objections (among other things a social worker had interviewed the two lower and a physician the highest social group). In Massachusetts Hyde & Kingsley (1944) classified 60,000 men with regard to the socio-economic situation of the municipalities according to a special scale. The lower down in the scale one came the more frequent mental disorders were found to be. This was particularly the case with mental deficiency, psychopathy, chronic alcoholism and psychoses. The variation regarding the prevalence of such disorders was in general rather small in the intermediary groups, while municipalities with particularly well-to-do populations showed low, and slum municipalities conspicuously high, ratios. The question of selective migration was not taken up. The neurosis ratios on the other hand, showed only unimportant variations.

In a survey in Baltimore, Pasamanick *et al.* (1957) found, on the whole, that the prevalence of the psychoses appeared to be associated with low economic status. How much of this was cause and how much effect the authors could not say, but they assumed that both mechanisms were operative. The occurrence of psychoneurosis fell first with rising income, but showed a high prevalence also in the highest income group; this was considered to mean that stress is greatest in the lowest and highest economic strata. For the psycho-physiological autonomic and visceral disorders, there appeared to be a definite trend toward an

increase in prevalence with increasing income; various hypotheses were put forward to explain this phenomenon.

According to a preliminary report Rennie *et al.* (1957) in an interview survey in New York covering 1660 persons, representing a random, cross section sample of a community population numbering 110,000 persons, has also found that mental disorders are, on the whole, most prevalent in the lower class and least prevalent in the upper class. The only exceptions were symptoms of anxiety, that are completely independent of the socio-economic status, and types of neurotic disorders characterized by anxiety symptoms uncomplicated by somatization or personality trait formation, which are more frequent in the upper class than in the lower class respondents.

Hitherto the most careful survey of this type is probably that made by Essen-Möller *et al.* (1956). In two parishes with 2550 inhabitants, thorough investigations were made regarding social and mental conditions. No less than 99 per cent of the inhabitants were examined. The material was divided into various occupational groups. Abuse of alcohol was most widespread among unskilled workers (which is widely known from numerous other surveys; cf. the literature survey in Åmark 1951, Kinberg *et al.* 1957, and others). Also oligophrenia was over-represented in this occupational group. For other mental disorders, on the other hand, no uneven distribution could be demonstrated in different social strata. This applied also to schizophrenia, which is in disagreement with most of the surveys already referred to.

To recapitulate, the surveys hitherto carried out on the relationship between mental disorders and social status are in many respects contradictory. This applies particularly to the occurrence of neurotic conditions, which in some investigations were found to be most frequent in the higher and in others in the lower social strata, while some investigators found little variation in this respect. The extent of manic-depressive psychosis, according to an almost unanimous opinion, does not seem to vary very much. It may probably also be regarded as certain that chronic alcoholism (and abuse of alcohol) predominate in the lower strata of society. Of other mental disorders most attention has been directed to schizophrenia. Most surveys point to a certain over-representation of schizophrenia in the lower social strata, especially in the slums. Most of these surveys have concerned urban populations, and it is possible that the deviating results obtained by Essen-Möller *et al.* may be related to the fact that their survey covered rural areas where pronounced slum conditions were exceptional, even though

unskilled workers were one of the largest occupational groups. It is also possible that selective factors of different kinds played a part in the previous surveys.

Several theories have been put forward to explain the varying extent of schizophrenia in different social strata observed by some investigators (cf. the account in Hare 1955, and others). Kallman (1938) pointed out that there was a progressive and unbroken fall in social status in families with several cases of schizophrenia. In most proband families the social level sank rapidly from the proband generation. This "down drift hypothesis" has particularly been maintained by Faris & Dunham (1939) and supported by Myerson (1940) and others. It is considered that potential schizophrenic patients would have exhibited difficulties of adjustment even before the onset of illness, and therefore tend to fall socially (cf. also Ødegaard 1956, Harris *et al.* 1956).

It may be pointed out here that a distinction must be made between developments before and after the onset of illness. It is easily observed that the social situation of schizophrenic patients may deteriorate after the onset of the disease, and after they are discharged from hospital. Particularly in residual states there is sometimes a marked reduction in ability to work. Many sink right down to the bottom of society, and are found in the pauper population. Such a process should be evident in population surveys which include an analysis of the social composition of the clientèle at a certain point of time. Some sources of error, however, play a part. Many of these patients no longer have gainful employment. At the examination they are then sometimes classified according to their last occupation (e.g. in Essen-Möller's survey) which they may not have practiced since the onset of illness. Others continue in their old occupation but perform simpler tasks. They are worse paid, work irregularly or half-time etc. Particularly in the country many probably live at home or work as farm-hands, but appear to hold their previous social position. This agrees with observations by Harris *et al.* (1956). It is therefore not certain that an actual declassing is apparent in a summary, occupational classification of the material.

Of even greater interest, however, is the uneven distribution of cases of schizophrenia which various surveys have demonstrated at the time of the onset of illness (that is in general at the first admission to hospital). In particular the group of research workers round Redlich and Hollingshead deny that any "down drift" has occurred in the previous history of the patient. Most of the schizophrenic patients have not changed social group. Those who come from the slums have generally belonged

to the slums their whole lives, and patients from higher social strata have not shown any tendency to sink in social status before the development of the illness (see Hollingshead *et al.* 1954). As an explanation of the varying distribution of schizophrenia the aforementioned dissimilarity in the treatment of the cases is advanced instead. The more differentiated therapy for the well-to-do would result in recovery and social rehabilitation more often than in the case of the poor (Hollingshead & Redlich 1954); patients who had risen in social status would be more favourable from the point of view of treatment than persons who, on the contrary, had gone downhill (Hollingshead & Redlich 1955). Hare (1955) has, however, pointed out that the different distribution of schizophrenia and manic-depressive psychosis in the population then seems difficult to interpret.

It has been suggested as a third explanation of the observed differences that various stress factors in different strata are related to different social and economic conditions. These would favour or inhibit, respectively, the development of psycho-pathological symptoms. On the other hand little attention has been paid in the discussion to the hereditary factors. It is possible that in actual fact it is a matter of a long-term process of sedimentation, where earlier generations have developed difficulties after becoming ill, and then have sunk in social status. Persons with a predisposition for schizophrenia would, therefore, in time, be over-represented in the lowest strata of society. Such a process during several generations would not be demonstrated by the methodology used by Hollingshead and Redlich.

Probably several circumstances contribute. At present the discussion is hypothetical; and for the moment it is of most importance to determine the actual distribution of schizophrenia and other mental disorders in society. This may still be regarded as incompletely investigated (cf. Felix & Kramer 1952, Lemkau 1955).

On the other hand it seems to be agreed that oligophrenia is more common in lower than in higher social strata. Numerous surveys on the relationship between economic situation and degree of intelligence point in the same direction. Income, occupation and so on, have then been used as a measure of economic standard and usually intelligence tests as a measure of the level of intelligence. In general the intelligence quotient has been found to be lower the further down in society the subjects of the investigation were classified (see the account by Phelps 1947, and others). As is known, however, investigations of this type have been severely criticised. Children from well-to-do and well

educated strata receive richer cultural stimuli, which must affect favourably even their intellectual development. It has also been proved that the intelligence quotient increases if the environment is improved. Children who are moved to a materially and culturally more favourable environment show increasing intelligence in the tests etc. (see Husén 1951, 1954, Ekman 1952, and others). Even the test methods have been criticised as tied to the environment. It is possible that such sources of error also play a part in the estimation of the rate of oligophrenia in different strata of society. As a rule, however, only advanced mental deficiency has been described as oligophrenia in these surveys (cf. page 133), and sources of error of this type may be considered to have played a rather limited role.

Just as little as in physical illness, however, can investigations on the relationship between economic and social level and mental disease be used to draw any definite conclusions on the prevalence of illness among paupers. Since mental disorders or defects present one of the main indications for relief, however, such conditions must reasonably be comparatively frequent among paupers. It is also natural that mentally defective, insane, and other severely abnormal persons have difficulty in managing in society, since for the most part they become completely disabled. They should run a greater risk than others of sinking to the bottom of society, and should therefore also be found in rather large numbers among the very poorest people, even if they perhaps do not change social group (the education is the same and they can be registered as qualified workers, although they are no longer gainfully employed). The paupers are recruited from all strata, even if, naturally, the lower social strata form the most important field of recruitment. In older literature also, there is mention of the many "mentally confused" in the pauper population (see e.g. Betänkande 1839).

The distribution of mental disorders among paupers, however, is not fully known. In an English survey (Statistical abstracts for the United Kingdom 1935, cited by Gillin 1937) it was demonstrated that over 8 per cent of the paupers were insane. In the total population only 0.4 per cent suffered from insanity. In 1932, 10 per cent of the sick persons on outdoor relief in Stockholm were said to be suffering from "weak nerves" and 2 per cent from insanity (Stockholm Statistics, Public Assistance 1932). In other Swedish investigations "weak nerves" (including both organic illness and nervous conditions) have been stated to occur in 12 per cent and insanity in 7 per cent of paupers.

Considering the method used in the inventory it may be assumed that minimum figures were obtained (see Jacobsson 1934, Rülcker 1937). In the National Health Survey in the U.S.A. there was a marked increase of nervous and mental diseases in paupers (Britten *et al.* 1940).

The extent of the various mental disorders in the pauper population also seems to be little known. According to Teilmann (1954) epilepsy is more frequent among paupers than in the general population, which is thought to be related to the insecure standing of epileptics on the labour market.

Many mentally disordered and extremely feeble minded persons are, however, incapable of managing by themselves, and must be taken in charge by mental hospitals or institutions for mentally defectives. Also in workhouses and infirmaries of different kinds there have always been many persons suffering from mental deficiency and psychic disorders. In American surveys up to 25 per cent mentally defective cases have been found in poor-houses (see Gillin 1937), while the paupers on outdoor relief contained 5–10 per cent mental defectives (Devine 1909). Even in Sweden there are to be found many mentally defective and insane persons in infirmaries. Recent investigations have shown that there are still many remaining (Lundquist & Hammargren 1954, Stockholms läns landsting 1957). Thus among paupers on outdoor relief it cannot be expected that any great number of helpless cases of this kind will be found. On the other hand many milder cases of mental illness, abnormality and deficiency with reduced ability to work should be found, either as members of a family or with their own household.

SUMMARY

This short survey shows that paupers deviate considerably from the general population in medical respects. Both the mental and physical morbidity are probably very excessive. It is, however, still not fully known which illnesses are particularly frequent.

CHAPTER 2

ON SICKNESS SURVEYS

DIFFERENT CONCEPTS OF MORBIDITY

Morbidity in a population may be measured in different ways. One can proceed from the number of sick persons during a specified period, the number of persons who are ill at a given point of time, the number of days of sickness during a period of observation, the number of persons of specified age who have suffered from various diseases etc. In the computations morbidity may also be defined in different ways. One may proceed from certain symptoms, from disability, from the number of persons reporting sick, or from absence from work or school etc. The degree of severity of the illness may also be judged from different viewpoints, for instance with consideration to the mortality risk, duration of illness, short- or long-term disability, confinement to bed etc.

Thus in sickness surveys different factors may be investigated. In an investigation of this kind it is therefore necessary to define concepts and problems carefully.

Broadly speaking it may be said that three different aspects of morbidity may be distinguished in a population.

1. The number of cases of illness that exist in a population at a given point of time, for instance on the investigation day (*the prevalence* of illness). This shows the number of individuals in the population who are sick (disabled, confined to bed, reported sick etc.) at a specified time, either the total number or the number suffering from certain stated diseases.

2. The number of new cases of illness occurring in a population during a given period of time, for instance a day, a week, a month or a year (*the incidence* of illness). Here a deterioration of existing illness may be included (for instance attacks or episodes of chronic illness, cf. Collins *et al.* 1951 *a*).

3. The risk of falling ill within a population may also refer to a certain period of time, as a year (annual risk). Of particular interest, however, is *the total risk* of illness during the life of the individual, or

up to a certain age, on condition he does not die of another disease before this age (*morbidity risk*). This is sometimes called *the expectancy*. The question then cannot refer to total morbidity (the risk in this case would very soon be = 100 per cent) but the risk for various diseases.

Obviously there is some connection between morbidity-figures obtained by these fundamentally different methods; but they give strikingly dissimilar pictures of the morbidity in a population. In an investigation of the prevalence of illness the prolonged and chronic illnesses dominate, while incidental and relatively short-term illnesses are not represented to the same extent. These diseases are, of course, numerous, but they do not last so long, and are unevenly distributed in time (cf. Woolsey 1950). In an investigation of incidence, however, the acute illnesses dominate. A survey in Baltimore (Collins *et al.* 1950, 1951*a*, Collins 1952) showed, for instance, that diseases of the joints and heart were most common in investigations of the prevalence of illness; while colds, influenza etc. were most frequent in investigations of the incidence of illness. In the former instance the number of chronic sick was about 177 per 1000, and the number of acutely sick between 60–70 per 1000. During the month prior to the interview, however, less than 10 new cases of chronic disease had occurred, but about 100 cases of acute illness per 1000. Chronic diseases showed no seasonal variation, but the acute diseases, and in particular acute diseases of the respiratory and digestive systems, showed very strong seasonal variations. The small part played by acute diseases in the total morbidity on a certain day means that in such sickness surveys only rather slight seasonal variations appear, but in investigations of the incidence of illness, on the other hand, there are strong seasonal variations.

In estimating the number of individuals in a population who have suffered from certain diseases, the period of observation is extended from a week, a month or a year to cover the whole life. Previous illness is therefore also of significance. The chance of having suffered from a certain disease may therefore be fairly high for a certain age group, although such cases neither appear in the inventory nor had occurred in the immediate past. At the age of 70 many individuals may, for instance, have had gonorrhea, but only a few cases of gonorrheal joint affections would probably have been met with in an inventory, and perhaps not a single case infected during the past month.

These three aspects thus give different pictures of the morbidity in

a population. They complement each other. The basis of computations which shall be used in different connections is dependent upon the nature of the problem and the practical purpose of the investigation.

METHODS IN SICKNESS SURVEYS

The methods employed also differ essentially in these three types of sickness surveys.¹

1. *Prevalence of illness*

In a survey of the prevalence of illness it is possible to go to work in two essentially different ways.

(a) All the individuals or sample in a population may be investigated, and the number who are ill registered (defined in accordance with various criteria, as, for instance, diagnosis, disability, confinement to bed, various symptoms etc.). The survey shall refer to a specified day, but not necessarily the same day for all the individuals in the sample, for such a condition would meet with considerable practical difficulties. Since seasonal variations, as already mentioned, are relatively small in sickness surveys of this type, the collection of material may well be permitted to take some time without hazarding the correctness of the results. If the investigation is primarily concerned with the prevalence of chronic illness, where seasonal variations do not exist, the compilation of material may even be permitted to extend over a period of years, providing that the panorama of disease does not undergo any substantial change during this time. This is the usual method in sickness surveys which aim at giving a broad picture of the extent of various illnesses in a population. It has been used in most of the sickness surveys which have been carried out for this purpose in the U.S.A., Canada, England, Denmark and other countries. The survey which Essen-Möller and his collaborators (1956) undertook in two parishes in Skåne was also of this type, but included in addition other data. A Swedish commission (mentalsjukvårdsdelegationen) has recently set up a small interview survey of this type in Stockholm. The data on the prevalence of illness and disability which were early included in the censuses in some countries (see Collins 1935, 1949) constituted the first beginnings of these sickness surveys.

(b) Another method is the case finding surveys where an attempt is

¹ Only a few particularly important methods are discussed here. For a more systematic study see the Expert Committee on Health Statistics (WHO 1952).

made to localize all persons in a population who suffer from certain diseases. In most diseases the number of cases is relatively limited and it is therefore too lengthy and impractical to investigate all the individuals in the population or a sample as in *a*. Instead the investigators find the cases by examining hospital and doctors' records, registers of different kinds, information from local authorities etc. and undertake a personal examination or interview only in those cases where there is reason to suspect the disease in question. Usually the whole population within a given area is covered in this way; sampling also occurs however (cf. e.g. the investigation of Redlich and Hollingshead discussed on page 27). Examples of such surveys are, for instance, the inventory of diabetes in Sweden (Dahlberg *et al.* 1947), where, however, even other bases for estimations were employed (e.g. consumption of insulin); the survey of sequelae to venous thrombosis (Gjöres 1956), where suspected cases were found by means of a questionnaire to all persons in certain populations; the investigation of multiple sclerosis in Denmark (Hyllested 1956) etc. The investigations of mental disorders carried out by Scandinavian research workers (Strömgren 1938, Fremming 1947, Sjögren 1948, Bööke 1953, Larsson & Sjögren 1954, and others) may also be mentioned here. In general these investigations cover not only the prevalence of the disease in question but also risk calculations; such data are discussed under *3b*.

2. Incidence of illness

In surveys of the incidence of illness it is also possible to use different methods.

(*a*) As above in *1a* one may investigate all persons in a population, or a sample, and find out how many cases of illness of different kinds occurred during a specified period. Here only new cases are included (possibly also acute episodes in old cases). The period the information covers may vary. As a rule the longer the period the information covers the more unreliable it will be. Morbidity, therefore, always appears highest for the immediate past. This is particularly the case with mild and short-term illnesses. For ordinary colds the reliability of the information falls after only one or two weeks (cf. Ciocco & Ring 1951). In most surveys the sickness rate for periods 3–4 months back is only about half that for the immediate past (see Collins 1935, Collins *et al.* 1950, Harris 1954, and others). The fall is greatest for the trivial illnesses which do not cause disability, and least for cases confined to bed (Collins *et al.* 1950). In severe and prolonged cases of illness the infor-

mation is probably fairly reliable, even if they occurred a considerable time before the interview. One illustration of this is the fact that a further fall in the reported morbidity is reduced or completely checked for periods of more than 3–4 months preceding the date of the interview, varying somewhat in different surveys. These “memory errors” are, however, a troublesome factor in investigations of this type (see Allen *et al.* 1954).

If the survey is not restricted to severe and prolonged illnesses, and information is required on the incidence of illness during a long period, for instance a year, a single interview does not suffice. The considerable seasonal variation in acute illnesses must also be taken into account. The interviews are therefore usually repeated at intervals of a few months (see Collins 1935, Harris 1954, and others). If the same persons are interviewed on repeated occasions, however, they become accustomed to the interview situation; this makes the information obtained on the different occasions to some extent incommensurable. In English and Danish sickness surveys this has been avoided by choosing new informants to interview each time (see Ciocco & Ring 1951, morbiditetsundersøgelsen 1953, Lindhardt & Friedberg 1955, Soop 1955) and in this way relatively reliable data may be obtained to cover a long period.

As a rule investigations of types 1*a* and 2*a* are combined when the material is collected.

(b) Another way of obtaining data which throw light on the incidence of illness is through the notification of observed cases by doctors or local authorities to the central administration. This can only possibly apply to a small number of diseases. It is in this way, for instance, that epidemic statistics are compiled. Such statistics cannot be reliable, however, since usually only those cases which are treated by a physician are included; many mild cases escape the observation of doctors entirely. In control investigations these deficiencies have emerged very clearly (see West 1948, and others).

(c) A third method is to study the medical certificates to health insurance institutions.¹ These statistics provide valuable information on morbidity, but cannot be regarded as either complete or reliable. They

¹ The first morbidity statistics were obtained in this way. In a chapter on vital statistics, Farr gave an account of cases of illness among members of “friendly societies” in Portsmouth Dock Yard (1830–32), the East India Company (1823–32) etc. Since then an extremely large amount of such data has been brought forward. For the history of sickness surveys, which will not be dealt with in this thesis, see also Collins (1940, 1949), Cohn & Lingg (1950), Sand (1952), and others. For sickness surveys of mental disorders see Lemkau *et al.* (1943), Fremming (1947), Bremer (1951), and others.

do not include certain groups in the population (e.g. children, persons whose benefit period has expired, persons who are not entitled to sickness benefit) and some types of illness (e.g. illnesses of shorter duration than the waiting period, non-disabling illnesses, etc.) The diagnosis in medical certificates is often symptomatic, and may, for reasons of secrecy, be incomplete or couched in general terms. The practice of different physicians varies also. In addition a medical certificate is not required for illnesses of short duration, and the payment of sickness benefit is then based on the declaration of the patient (cf. Betänkande 1955).

(d) Analyses of hospital and doctors' records may also provide information on morbidity. The deficiencies here are obvious. Hospital material is often extremely selective (cf. Dorn 1951, Expert Committee 1952, Morbiditetsundersøgelsen 1953 and others). As a complement to other morbidity data, however, information of this type is always very valuable on account of its reliability and completeness. Consideration has also been given to improving this approach from the statistical point of view by selecting a sample of doctors in such a way that the corresponding patients would be representative for patients in the whole population. Attention would then have to be paid to the various specialities, types of activity etc. (cf. Weissman 1952, Expert Committee 1952).

3. *Morbidity risk*

Even the calculation of morbidity risks may be made in different ways.

(a) These calculations may be based on the number of persons falling ill for the first time during a period of one year. From the frequency of these cases in different age-groups it is possible to estimate the total risk of contracting the disease in question up to a specified age. This method is to some extent analogous to the mortality estimations which are made, for instance, in life insurance statistics (cf. method 14, page 51). Material for these calculations may be obtained from sickness surveys of types 1*a* and 2*a* if inquiries are then made as to whether the illness has been contracted for the first time. An example of such estimates is Dahlberg's calculations (1934) of the risk of an inhabitant of Stockholm being infected with syphilis; corresponding calculations for gonorrhea have probably been given too high values since re-infections, which are fairly common for gonorrhea, were also included.

(b) Risk-estimates may also be carried out on material collected by the case finding surveys already mentioned (1*b*). In this type of survey

it is possible to seek for persons suffering from certain diseases and also for persons who have previously had these diseases but have been cured before the investigation. Everyone within the population who has at any time suffered from the disease in question will then be included, and the morbidity risk may be calculated by different methods (cf. methods 17 and 18, page 52). This approach has been followed in particular in psychiatric morbidity studies. Different procedures have been used (see Larsson & Sjögren 1954). According to the genealogical random-test method the probands are selected at random and a study is then made of their relatives (e.g. Strömngren 1938). In the birth register method (the generation method) the investigators start from the birth register, choose an age group born 50 or 60 years previously and make a follow up study of an area or a sample (e.g. Fremming 1947). In the census method an inventory is made of a limited area at a specified time as in 1 *b* but an attempt is also made to come into contact with persons who have previously suffered from the illness in question (e.g. Strömngren 1948, Böök 1953, Larsson & Sjögren 1954). In some of these investigations the cases were then followed for a fairly long period (the period method, see Larsson & Sjögren 1954).

In using the census method it must be remembered that some cases may be lost, for instance through the excess mortality of the insane in comparison with the general population. Various methods of correcting this error have been suggested (see Böök 1953, Larsson & Sjögren 1954, and others). Also migration may be of some significance.

Bremer (1951) and Essen-Möller *et al.* (1956) also use the census method, but since their surveys covered the whole population (Bremer about 83 per cent, Essen-Möller *et al.* 99 per cent) they cannot be described as case finding surveys. They are essentially investigations of type 1 *a* but with supplementary data concerning previous cases of mental disorders within the population also.

(c) Analogous risk-calculations may also be made on limited populations constituting a special clientele (e.g. Ekblad 1948, Åmark 1951). At the medical examination anamnestic data are also obtained; sometimes the material has been supplemented with information from other sources. The morbidity risk may then be calculated in the same way as in 3 *b* (cf. methods 17 and 18, page 52). If the age of onset of the disease is known, the morbidity risk may also be calculated by method 14, page 51 (cf. above, 3 *a*). The calculations are then based on the sickness rate at various ages during the development of the individual. The data in such calculations do not apply to one year but are spread

over a generation; therefore comparison with morbidity risks calculated according to the method in 3*a* is only possible if the sickness panorama for the disease in question has remained relatively stable during the period covered by the anamnesis. It is probably rather rare that such conditions exist. Since these risk-estimates must be based partly on interview information whose reliability may be doubtful (see above 2*a*), the method can only come into question in relation to serious diseases which it may be presumed that the subject interviewed cannot have forgotten, or which may be verified in other ways.

SOME METHODOLOGICAL PROBLEMS

Some sources of error in investigations of this type have already been mentioned. Some further problems of method will now be discussed (for a more detailed treatment see Ciocco & Ring 1951, the Expert Committee 1952, Dunn 1952, Muller *et al.* 1952, Trussel *et al.* 1956, and others).

In sample investigations the question arises of the representativeness of the sample. The technical approach to this subject has been given much attention. In different surveys different methods of approach have been employed (see Collins *et al.* 1950, Dale 1950, Horwitz 1952, Soop 1955, Hamtoft 1955, and others). The most suitable method of sampling in sickness surveys of different kinds is still under discussion (see e.g. the Expert Committee 1952, Woolsey 1956). Probably this problem will also be studied in the extensive sickness survey which was commenced in the U.S.A. in 1957; there a number of methodological problems will be studied.¹

Another important source of error in these investigations is the existence of individuals who, for various reasons, cannot be contacted (cf. page 97). The size of this group varies considerably in different sickness surveys. In an investigation in Pittsburgh it was 5.5 per cent, and of this 2.2 per cent were unavailable and 2.7 per cent were refusals (Horwitz 1952). In an investigation in Manitoba (Elliott 1953) this group was 3.1 per cent, in the Danish investigation it was no less than 18 per cent, of which 1–2 per cent refused and 9 per cent were unavailable, and so on. There are certain categories which are particularly inclined to be unavailable, e.g. inmates of institutions (Soop 1955). This problem will be discussed further in chapter 5 (page 97).

¹ Cf. Public Health Report 1957, 1. Further details on this extremely interesting survey have been given in a report of the U.S. National Committee on Vital and Health Statistics 1953 and in the reports of Congress proceedings.

A third important problem, particularly with regard to large surveys as described in 1 *a* and 2 *a*, is the method of collecting data. The number of persons who are ill on the day of observation itself may be determined either through a medical examination of the individual (including more or less thorough special examinations to establish the diagnosis) or through interviews. Questionnaires are not usually used. The number of previous illnesses can usually only be determined by an interview. Medical observation of all cases has only been carried out by way of exception (e.g. Essen-Möller *et al.* 1956) in the sickness surveys of type 1 *a* and 2 *a* undertaken hitherto. They have often covered a very large number of cases (cf. page 61) and generally one or more follow up interviews have been made. Usually a representative for each household has been interviewed; generally it was the housewife who was most easily available. She had to give an account of the state of health of herself and the other members of the household for the period covered by the investigation. It is apparent that they always found it easier to give an account of their own illnesses than of those of the other members of the household. They had not been so well informed on the illnesses of the other members, or they had forgotten them more easily (Collins *et al.* 1951 *b*). The sickness rate, therefore, was nearly always highest for the informant herself, particularly in the case of trivial, short-term illness (cf. Horwitz 1952). For the prevalence, however, the information was probably quite reliable even for other members of the household. The housewife's information on the children is considered reliable even for past periods (see e.g. Collins 1940). In some investigations (e.g. the Danish sickness survey) all the adults were interviewed personally. In order to increase the reliability of the information the informant has sometimes been told to keep a diary on the illnesses that occur between the interviews (see Peart 1952, Weismann 1952, Allen *et al.* 1954, and others).

Irrespective of who is interviewed and disregarding forgetfulness and so on, the interview method contains a number of other sources of error. Some people do not know they are ill, since the subjective symptoms at the time are relatively mild. Some attempts at concealment cannot be excluded, particularly in relation to certain types of illness (venereal diseases, abortions, other affections of the genital organs, mental disorders—cf. Soop 1955). There may be ignorance or mistakes concerning the diagnosis; even if the individual has consulted a physician for his illness, a misunderstanding may have arisen or there may have been inadequate information given. Often, therefore, the investigators

had to be satisfied with symptomatic diagnoses of the type headache, diarrhoea, constipation, nerviness etc. or "organ diagnoses" of the type kidney disease, or intestinal trouble (cf. the Danish sickness survey). Many diseases are thus rather poorly differentiated in sickness surveys of this type. It is only for a limited number of rather well-defined and important diseases that differentiated data may be obtained (e.g. tuberculosis, asthma, duodenal and gastric ulcer, psoriasis, diabetes etc.).

In order to mitigate deficiencies of this type, some interview surveys have been combined with inquiries from attending physicians (see Collins *et al.* 1950, Elliott 1953, Kennedy 1953, and others), procuring of hospital case-papers (Collins *et al.* 1955), perusal of pension documents (Kennedy 1953) etc. Systematic employment of information of this type (see above 3*d*) has increasingly been regarded as an essential complement to the interview method. Since some diseases must remain undiscovered, as the informants do not know about them, in some investigations the interviews have been combined with multiple screening of a representative sampling of the population (see Dorn 1950, 1951, Weissman 1952, Pasamanick *et al.* 1957, and others). The sickness survey commenced in U.S.A. in 1957 is to include both periodic canvasses by specially trained interviewers, and special investigations of small samples, to include medical examinations, laboratory tests, perusal of case-papers etc. In the Danish sickness survey the agreement between the physicians' diagnoses and the informants' own reports was rather good except in the case of cancer and some neurotic disorders (Soop 1955). In other investigations there have been discrepancies also for venereal diseases (see Weissman 1952, and others). In the Canadian sickness survey the agreement with the diagnoses given by the informant was about 80 per cent (Peart 1952, Harris 1954). These opportunities for checking information were not available in the many cases where a physician had not been consulted. In the Baltimore survey of chronic diseases conducted in 1953-55 it was reported (Krueger 1957) that household interview data grossly understated the prevalence of chronic disease. Clinical examinations were recommended rather than household interviews as a method of studying the prevalence of disease, but it was observed that the amount of disability resulting from chronic disease can be measured equally well by interviews as by any other method. The completeness of household reporting of disease varied widely in different diagnostic groups. Trussel *et al.* (1956) compared different methods of investigating the prevalence of illness in

a population, and considered that the home interview only gave satisfactory results in eye disease, mental disorder, diabetes, rheumatic fever and heart disease; on the whole the morbidity figures obtained were too low.

In less extensive sample surveys (in particular those described previously in 3c), thorough medical examinations have sometimes been carried out in every case. This is naturally the only way to get fairly reliable diagnoses. Even with such a procedure, however, there may remain some uncertain cases for which more detailed examinations and prolonged observation would have been desirable; however this usually only applies to a small number of cases. There is generally an uninvestigated element also, which may be detrimental to a generalization of the results, since lack of contact is seldom due purely to chance. Comparisons between the results of these small, intensive investigations and the broader population surveys already described meet with certain difficulties, since the material is obtained by different methods, and the data is to some extent incommensurable. For certain fairly well-defined diseases, however, the results may probably be regarded as to some extent comparable.

Sources of error occur also in case finding surveys. The result is above all dependent upon how thoroughly one goes to work. In particular if the cases discovered have been medically examined the morbidity figures obtained may be regarded as rather reliable. In some inventories on the other hand, the figures have at times been more summarily obtained (e.g. the diabetes survey of Dahlberg *et al.* 1947).

DISCUSSION ON SICKNESS SURVEYS OF PAUPER POPULATIONS

The material on which morbidity statistics may be based is thus variable in regard to its character and value. With the above description as a background, a further point may be mentioned concerning sickness surveys of paupers. In the social welfare records which are made out for all persons who apply for relief, there are usually regular reports on the state of health of the individual, generally based on medical certificates. As in medical certificates for health insurance, however, the diagnosis may sometimes be summary and incomplete. Close contact with the patients has, for instance, shown that mental disorders, in particular, are not infrequently disregarded or overlooked. As an example may be mentioned a patient who was declared in a certificate to be "without symptoms of physical disease" except for a hammer toe,

and in a certificate from another doctor was not considered to display "any demonstrable sign of external or internal disease". In actual fact he had previously been given malarial treatment for general paralysis, and was severely demented; this was the cause of his social difficulties which it would otherwise have been hard to account for. A list of similar cases could be quoted (see Inghe 1944). The information in the social welfare record documents alone, therefore, cannot give a correct picture of the morbidity situation of paupers. In Rülcker's review of the paupers in Stockholm 1937 the material in the social welfare record documents was supplemented by a medical examination in about 37 per cent of the cases (Rülcker 1942). In the present project it was considered that all cases should, if possible, undergo a medical examination. It is especially the long-term illnesses that are of importance in the situation of paupers. Trivial, short-term illnesses are of limited interest in this connection. Generally these illnesses are not accompanied by serious or lasting disturbance of the earning power of the individual, and they seldom lead to an application for relief. The investigation should therefore be directed in the first place to the prevalence of illness, and not the incidence.

The case history is also of interest in illuminating the question of the development towards poverty. Some have received relief for many years, and their state of health at the commencement of the relief period is of particular interest. Tuberculosis may be mentioned as an example. It is often a prolonged illness which may involve disability for many years, and which may have initiated the impoverishment of the patient. It is therefore of great interest to know how many of the paupers have had tuberculosis. The same applies to psychoses. Even if the individual is now well, the occurrence of mental disorders in the anamnesis must be allotted great significance in the course of developments. This does not complicate the collection of material to any great extent, since data on previous illness is in any case necessary in the judgement of the origin of the relief situation.

The present investigation has therefore been built up as a combination of sickness surveys of types 1a and 3c. Risk-estimates, however, have only been undertaken to the extent in which comparison with the situation in the general population or in other samples has been possible. Morbidity has been measured partly from registration of different diagnoses, partly from an assessment of disability. In order that the diagnoses may be as reliable as possible, the interviews have been supplemented with a mental and physical examination wherever

possible, and with information from other sources. In this respect, however, it has been necessary to take some account of the rest of the survey programme. It was clear from the beginning that if some subjects, who were otherwise positive in their attitude to the investigation, refused to accept a physical examination, testing, etc., these had to be dispensed with in order not to jeopardize the collection of other data.

CHAPTER 3

STATISTICAL METHODS

In the analysis of the material the following statistical methods have been used.

QUANTITATIVE VARIATIONS

If the variable is denoted by x and the number of cases by n , the mean $\bar{x}$ in a sample is calculated by the following formula

$$\bar{x} = \frac{\sum x}{n}. \quad (1)$$

The dispersion s of the sample has been calculated from the formula

$$s = \sqrt{\frac{\sum x^2 - (\sum x)^2/n}{n-1}}. \quad (2)$$

The dispersion or standard error of the mean $\varepsilon(\bar{x})$ is calculated from the formula

$$\varepsilon(\bar{x}) = \frac{s}{\sqrt{n}}. \quad (3)$$

As a measure of the differences between two samples the difference between the means has usually been used. It has then been assumed that the samples have been drawn from the same population, and the 0-hypothesis has been tested. A condition for this is that the samples have an approximately normal distribution, so that formulas derived from normal distributions can be used. Further it is assumed that the variances s^2 of the samples do not deviate from each other significantly. If σ^2 denotes the true variance, the hypothesis $\bar{x}_1 = \bar{x}_2$ has thus been tested on condition that $\sigma_1^2 = \sigma_2^2$ (cf. Fisher 1938, Quensel 1944, Cramér 1945, Hald 1948, and others).

In testing the 0-hypothesis, the relationship has been calculated between the difference of the means and the difference of the standard errors (critical ratio)

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\varepsilon(\bar{x}_1 - \bar{x}_2)}. \quad (4)$$

The standard error of the difference has been calculated in different ways according to whether the material was large or small. When the number in each sample exceeds 50, the standard error of the difference is determined from the formula

$$\varepsilon(\bar{x}_1 - \bar{x}_2) = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}. \quad (5)$$

When the number of cases in each sample ≤ 50 a common standard deviation s for both samples has been calculated instead from the formula

$$s = \sqrt{\frac{s_1^2(n_1 - 1) + s_2^2(n_2 - 1)}{n_1 + n_2 - 2}},$$

i.e. the square root of the weighted mean of the variances of both samples (see Kemp 1942, Quensel 1944, and others).

After that the standard error of the difference is determined from the formula

$$\varepsilon(\bar{x}_1 - \bar{x}_2) = s \sqrt{\frac{n_1 + n_2}{n_1 n_2}}. \quad (6)$$

The value obtained for the standard error of the difference according to (5) and (6) respectively has been inserted in (4). The level of probability has then been read off from a t -table.

The number of degrees of freedom d.f. has then been estimated according to

$$\text{d.f.} = n_1 + n_2 - 2. \quad (7)$$

The following assessment of significance has been used (according to Cramér 1945). When the t -value corresponds to the probability $P > 0.05$, the difference has not been regarded as significant. When the t -value corresponds to the probability $0.05 \geq P > 0.01$, the difference has been regarded as almost significant*. When the t -value corresponds to the probability $0.01 \geq P > 0.001$, the difference has been denoted as significant**. When, finally, the t -value corresponds to a level of probability $P \leq 0.001$, the difference has been denoted as highly significant***.

QUALITATIVE VARIATIONS

In comparisons between two percentage figures the χ^2 -method has generally been used in estimating significance.

With small materials (n_1 and n_2 respectively ≤ 20) the exact values of χ^2 were obtained from Mainlands tables (1948). If the samples exceeded 20, χ^2 was determined as follows:

$$\chi_c^2 = \frac{\left(n_{11}n_{22} - n_{12}n_{21} - \frac{N}{2}\right)^2 \cdot N}{(n_{11} + n_{21})(n_{12} + n_{22})(n_{11} + n_{12})(n_{21} + n_{22})}. \quad (8)$$

χ_c^2 denotes that Yates' correction for continuity has been used. There are no definite rules for the use of this correction (cf. Fisher 1938, Snedecor 1950, Mainland 1952, and others). Since the samples in this survey did not exceed 500 in any computations, it has, in accordance with Snedecor, been considered simplest to use formula (8) with Yates' correction as a routine method (cf. Dahlström 1951). The corresponding level of probability was deduced from a table of the distribution of χ^2 with one degree of freedom. The same limits in the definition of significance have been used as in quantitative variation. In the estimations the precautionary measures have been followed in applying the χ^2 -test to the fourfold tables which Mainland (1952) set up.

When a sample is compared with an expected distribution (which in this survey is synonymous with the situation in the general population, the whole pauper population or some other large population from which the sample might have been drawn), the usual formula

$$\chi^2 = \sum \frac{d^2}{n} \quad (9)$$

has been used, where n denotes the expected value and d the difference between the observed and the expected value. When there are two classes Yates' correction has also been used here throughout, reducing the numerical value of the respective differences by 0.5.

In comparisons of 2 samples each distributed in more than 2 classes, χ^2 has been determined from the formula (see Bonnier & Tedin 1940)

$$\chi^2 = N \left(\frac{\sum \frac{n_1^2}{n'} + \sum \frac{n_2^2}{n'}}{\bar{n}_1 + \bar{n}_2} - 1 \right). \quad (10)$$

Here the expression $\sum n_2^2/n'$ may be determined from the formula

$$\sum \frac{n_2^2}{n'} = \sum \frac{n_1^2}{n'} + \bar{n}_2 - \bar{n}_1.$$

In these calculations the number of degrees of freedom corresponded to the number of classes reduced by 1. The expected number of cases should be at least 5 (see Bonnier & Tedin 1940, Mainland 1948, Snedecor 1950, and others). If this was not the case the classes have been combined so that the number increased.

χ^2 -values calculated from samples which are independent of one another may be added together, whereby a measure of probability is obtained which is valid for several distributions at once. Here the following formula is used (see Cramér 1945, Hald 1948, and others):

$$\left. \begin{aligned} \chi_s^2 &= \chi_1^2 + \chi_2^2 + \chi_3^2 + \dots + \chi_k^2 \\ \text{d.f.}_s &= \text{d.f.}_1 + \text{d.f.}_2 + \dots + \text{d.f.}_k \end{aligned} \right\} \quad (11)$$

On isolated occasions, in the estimations of significance of two percentage figures, the standard error has been calculated instead. Then the usual formula

$$\varepsilon(p) = \sqrt{\frac{p(1-p)}{n}} \quad (12)$$

has been used.

The standard error of the difference between two percentage figures p and q has been calculated from the formula

$$\varepsilon(p-q) = \sqrt{\varepsilon^2(p) + \varepsilon^2(q)}. \quad (13)$$

ESTIMATIONS OF THE RISK

Calculations of the risk of contracting an illness up to a certain age have followed the same methods as used in life insurance statistics for estimating the total risk of death up to a given age limit (cf. Wicksell 1920, Hyrenius 1951, and others). The method has been used by many Swedish research workers for various problems (see Dahlberg 1939, 1943, 1944, Ahnsjö 1941, Dahlberg & Lindberg 1944, Ramer 1946, Alm 1953, and others). The method has been as follows.

The number of individuals at the commencement of an age year x is denoted as L_x and the number of persons who become ill during this year are denoted as D_x . Isolated individuals may disappear from the observation material for various reasons during this year. It is assumed that this disappearance always occurs at the age $x + \frac{1}{2}$ years and that the number of such cases is A_x . The number of persons remaining at the beginning of the following year is

$$L_{x+1} = L_x - A_x - D_x.$$

The risk p_1 for the first year (year 0-1) will then be

$$p_1 = \frac{D_0}{L_0 - \frac{1}{2}A_0}$$

and for the x th year (i.e. the year $x-1$ to x)

$$p_x = \frac{D_{x-1}}{L_{x-1} - \frac{1}{2}A_{x-1}}$$

which corresponds to the risk of falling ill within one year for a person of $(x-1)$ years of age.

For the first year the total risk is $=p_1$. For the second year the total risk will be

$$r_2 = 1 - (1 - p_1)(1 - p_2);$$

for the third year

$$r_3 = 1 - (1 - p_1)(1 - p_2)(1 - p_3)$$

and for the x th year

$$r_x = 1 - (1 - p_1)(1 - p_2) \dots (1 - p_x) \quad (14)$$

which corresponds to the risk for a person of "0 years" falling ill within x years.

This formula has also been used to calculate the expected number of deaths in a population during a certain number of years. For $p_1 p_2 p_3 \dots$ have been inserted the observed mortality risks for the various ages in the general population, whereby there is obtained the risk for *one* person dying during a given period. The total number of deaths will then be

$$\sum n_i r_i \quad (15)$$

and the variance

$$\sum n_i r_i - \sum n_i r_i^2. \quad (16)$$

Within psychiatry some other methods of calculating the morbidity risk have also come into use. Weinberg's "abgekürztes Verfahren" (see Strömgren 1935, Sjögren 1948, Åmark 1951, and others) assumes that different illnesses have different manifestation periods. Persons who have not reached the manifestation age have not yet been exposed to any risk and therefore are not included in the risk calculations. Persons who are in the manifestation period have not been exposed to the whole risk, and therefore are only reckoned as a half case. If the number of sick persons is denoted as d , the total number of persons as n , the number of persons who have not reached the manifestation

period as n_o and the number of persons in the manifestation period as n_m the morbidity risk will be

$$p = \frac{d}{n - n_o - \frac{1}{2} n_m} \quad (17)$$

In Strömgren's method (see Strömgren 1935, Alström 1950, Åmark 1951, and others) one investigates the way in which cases of illness are distributed in the different ages at the time of onset of illness, and then one can calculate, in essentially the same way as in the above method, the total risk of contracting the illness up to a certain age. After that the total risk to the middle of a specified age class is multiplied by the number of individuals in this age class at the time of observation, and the corrected number of persons in the various age-groups thus determined are added together. If the number of sick persons is denoted as d , the number of individuals in the age-groups i as n_i and the morbidity risk up to the middle of the age group as r_i , the total morbidity risk is determined from the formula

$$P = \frac{d}{\sum n_i r_i} \quad (18)$$

Larsson and Sjögren (1954) have made certain modifications of Weinberg's and Strömberg's method which have also been used in the present survey.

The corrected number of individuals upon which the morbidity risk is calculated is called "Bezugsziffer" (=the denominator in formulas (17) and (18)). In a comparison of two morbidity risks the χ^2 -method has been used in the estimation of significance, and the "Bezugsziffer" has then been inserted instead of n .

STANDARDIZATION

In this survey the controls have been chosen so that important qualities as age, marital status, family type etc. (see chapter 4) were anyway approximately the same in the two materials. In comparisons with the situation in other material standardization has been carried out to obtain the same age and sex distribution etc. Since the samples were small, it was, in general, most suitable to standardize the population with which the comparison was made to the same age distribution as in the samples (see Dahlberg 1940, Alström 1942, 1950, Åmark 1951, and others). If the number of individuals in a certain group in

the pauper material (age-group, sex etc.) is denoted as a_i and the relative frequency of a certain quality in another population in the corresponding group as p_i , then

$$\Sigma a_i p_i \quad (19)$$

constitutes the expected number, i.e. the number that would have been found in the sample if the morbidity frequency was the same in the sample and the population in question. Then the observed and the expected number of cases could be compared.

The standard error for the calculated figure has been determined from the formula

$$\varepsilon(p_0) = \sqrt{\frac{n_1^2 \varepsilon^2(p_1) + n_2^2 \varepsilon^2(p_2) + n_3^2 \varepsilon^2(p_3) + \dots + n_k^2 \varepsilon^2(p_k)}{\Sigma n^2}} \quad (20)$$

where n_1, n_2, n_3 etc. are the number of cases in the respective groups in the survey samples and p_1, p_2, p_3 etc. the morbidity ratios in the population with which it is compared (see Dahlberg 1940).

The difference between the observed and expected ratios is then assessed for significance, using formula (13).

Sometimes the distribution of cases of illness in the various age-groups etc. is not known for the population with which a comparison is to be made. For this or other reasons the survey material has, instead, sometimes been standardized to the same distribution as the population in question. With a small material and infrequent illnesses there are considerable sources of error in such a procedure. In some age-groups there may be no cases of the illness at all. Then $p_i = 0$ and although this age-group may be multiplied many times during standardization, cases of illness will still be lacking. In such comparisons, therefore, estimations of significance have not been made.

CHAPTER 4

THE SUBJECTS OF THE SURVEY

In the sickness survey the same material has been used as in the investigation of the process of impoverishment of persons on relief, as mentioned in the introductory chapter. A short report will now be given of how the material in the present survey was selected.

THE FIELD OF INVESTIGATION

Stockholm was made the field of investigation because the social welfare authorities in Stockholm were interested in the project, and provided me with the practical requirements for carrying it out.

The year 1943 was chosen as the starting point for the investigation. Stockholm then had 634,000 inhabitants, which was about 10 per cent of the population of the country and nearly $\frac{1}{4}$ of the urban population. Stockholm has long had a considerable excess female population; the proportion of men to women in 1943 was 1:1.23. The youngest age-groups were comparatively small. Only 15 per cent were under 15 years of age, 60 per cent were between 15 and 50 and 25 per cent were over 50.¹ This contraction at the bottom of the age pyramid has been more marked for Stockholm than for the rest of Sweden. The rising nativity at the end of the thirties and beginning of the forties has, however, resulted in the very youngest age-groups becoming larger again; the base of the age pyramid had thus broadened somewhat in 1943.

Particularly conspicuous for Stockholm is the large age-group 20-35 (see Town Planning Office 1952). The dominance of these ages is typical for urban populations, and is due to excess immigration. For many years about 60 per cent of the population of Stockholm has consisted of immigrants. Most of the immigrants were young. At the same time there has been pronounced migration within the city with a reduction of the population in the centre and a marked increase of the population of outer areas, where particularly young families with children have settled. In 1943, 27 per cent of the total population and

¹ See Statistical Year Book of Stockholm 1944, tables 6, 8 and 22.

41 per cent of the children lived in the suburbs.¹ Later this migration out to the suburbs has been even more accentuated.

There are no large, decidedly slum areas in Stockholm. It is true that there are several areas with houses in a bad state of repair, and mainly poor inhabitants (e.g. Årstadal, Årstaskog, parts of Gröndal, some areas in Maria, Katarina and St. Nikolai parishes) but these areas are relatively limited and do not give the same impression of hopeless misery as slum areas in some other large cities. One explanation given for this is that Stockholm became a great city one or two generations later than many other European and North American cities. It developed during a period when it was possible to direct the exploitation through legislation and information, so that severe slum development and over-population were avoided (The Town Planning Office 1952). With the present shortage of housing, however, there has developed some differentiation of those seeking homes; a tendency to slum development in certain new suburbs has therefore become evident (e.g. Hökarängen).

The occupational structure of Stockholm is summarized in table 2. It is conspicuous that administration and trade are largely concentrated to Stockholm. It is the top organisations in administration, politics, distribution, in particular banking and wholesale distribution, and higher cultural activity which come to Stockholm. These occupational groups, apart from distribution, are however rather small, and do not in any way dominate the economic life of the city. Industry and handicrafts are the largest occupational groups. Even so, Stockholm is not a pronouncedly industrial city. Its share in the industry of the country is relatively small, as appears from the table. The most important branches are building and engineering, particularly the rapidly expanding electro-technical industry, secondary paper and graphic industries, and also food manufacturing and the textile industry. The soil and quarrying industry, manufacture of wood, leather, hair, and rubber products are not so well represented (see The Town Planning Office 1952).

Public Assistance in Stockholm in 1943 was organised in 13 social welfare offices. Investigations of the need for relief were carried out by special officers. Local committees in the various parishes were required to make a decision in accordance with the general principles drawn up by the Public Assistance Board for the whole city. The decision of the local committees could be revised by special representatives for relief matters who are appointed by the Public Assistance Board.

¹ See Statistical Year Book of Stockholm 1944, tables 31 and 20.

TABLE 2. *Main occupational groups in Stockholm 1945 (according to the General Plan 1952).*

Occupational groups	Percentual distribution of occupational groups in Stockholm	Occupational groups in Stockholm in % of those in the whole country. ^a
General administration	5.7	36.8
Defence	3.0	21.1
Health and social services	5.6	19.0
Religion and culture	5.7	22.7
Distribution	29.9	25.0
Transport and communications	9.2	15.0
Industry, handicrafts etc.	36.1	11.6
Domestic service	4.8	14.1
All groups	100.0	16.4

^a Excluding persons employed in agriculture.

Since 1934 the local committees and offices (with the exception of one experimental office) have been relieved of the duty of giving relief or other assistance to the unemployed. These matters are dealt with by the unemployment committee and its various offices. As already mentioned (page 13) it sometimes happens that the social welfare offices also help the temporary unemployed, especially partially disabled persons who have difficulty in finding suitable work.

THE SELECTION OF THE PAUPERS

In Stockholm statistics paupers are classified according to family type into single (i.e. unmarried, previously married or married persons living without a partner) men and women respectively with and without children, and married or cohabiting persons with and without children (see table 3). Each family on relief, which may sometimes consist of one person, is given a number in the social welfare records. When the family consists of more than one person the statistical data concern the head of the family, that is the woman if she is living alone with a dependent child, otherwise the man. In the statistics information is given on the age of the head of the family, the number of children, parish, the number of months during the year during which relief is drawn, extra municipal pensions etc. In 1943 the statistics were based on an one fifth sampling covering all the numbers in the social welfare records which end in 0 or 5. By age is meant the age at the end of the year.

TABLE 3. *Composition of the pauper population in Stockholm 1943 and the sample, distributed according to family type.*

Family type	Total no pauper families	whereof					Distribution of sample on selection	Actual distribution of sample
		in institution, boarded out etc.	domiciliary assistance through un- employment assistance	domiciliary assistance through public assistance offices				
				over 67	16-67 relief 6 months or less	16-67 relief more than 6 months		
1	2	3	4	5	6	7	8	9
Single men without children	8,665	4125	740	1460	870	1470	102	80
Single men with children	145	30	85	5	—	25	2	1
Single women without children	12,340	3375	20	3460	1620	3865	258	243
Single women with children	2,185	200	140	—	870	975	71	66
Couples without children .	2,560	265	305	865	440	685	35	68
Couples with children . .	2,730	215	1140	45	850	480	32	42
All families	28,625	8210	2430	5835	4650	7500	500	500

In 1943, 0.8 per cent of the population of the city had received relief at some period during the year on admission to homes for old people or other public assistance institutions, 0.5 per cent on admission to mental hospitals or mental deficiency institutions, and 0.6 per cent on admission to other hospitals, while 0.1 per cent were boarded with private families (especially children), 1.2 per cent received help through the unemployment office and 4.5 per cent received domiciliary assistance through the social welfare offices. Some cases (a total of 1.1 per cent) had received help in more than one way during the year and therefore had been counted twice; if the total figure is adjusted in this respect a total of 6.6 per cent of the population had received relief during the year. This corresponded to nearly 29,000 families or roughly 42,000 persons, of whom more than 8000 were under-age as defined in the Public Assistance Act, that is under 16 years of age. The latter have not been included in this survey, which is exclusively concerned with adults. The distribution of the several forms of assistance is shown in table 3, which is partly based on information from official statistics (see Public Assistance in Stockholm 1943), and partly on the analysis made here of the source material (columns 5-7). The figures in columns 3 and 4 are calculated after adjustment for the aforementioned cases which were counted twice.

Some of the paupers had only received public assistance for a part of the year. The length of the relief period for those who received domiciliary assistance through the unemployment offices or the social welfare offices is shown schematically below:

No. of families: 20,415											
Whereof on relief in the following no. of months (in %).											
1	2	3	4	5	6	7	8	9	10	11	12
15.9	8.3	5.5	4.5	3.1	3.2	3.1	2.5	2.2	3.0	4.9	43.8

Many had only received public assistance for a short period, about $\frac{1}{4}$ only for 1 or 2 months, while nearly half had received assistance for the whole year. Thus the majority had received assistance either for the whole year or only temporarily.

The problems dealt with in this work (see pp. 1 ff.) have concerned the cause of the need for public assistance, adjustment to the relief situation and possibility of rehabilitation and social reinstatement of the long-term paupers who remain even during full employment. Regarding certain sections of the pauper population this problem is of

limited interest. Paupers in public assistance institutions are generally helpless persons who have been taken care of for a long period, most of them have pensions. It is obvious that these persons cannot support themselves. Measures for rehabilitation are probably nearly always doomed to failure. Hospital cases are of a more mixed character. The situation of the chronic sick patients is about the same as for the inmates of public assistance institutions. Where the period of hospitalization is short the patients have either received domiciliary assistance during another part of the year or they have been able to maintain themselves without assistance when they have recovered. For the latter category expenses incurred for hospitalization must have been the immediate cause of the need for assistance. A further investigation of this matter is of limited interest in the present connection; the question of rehabilitation of hospital cases is not a problem exclusively for public assistance cases in hospital, but equally well for the other patients. The inmates of institutions and hospitals and persons boarded with private families were therefore not included in the investigation.

Even among recipients of domiciliary assistance there were certain categories which were of limited interest. During the forties unemployment periods were probably for the most part of short duration, related to change of employment, seasonal work etc. In order to isolate the permanent residue more effectively it was considered desirable to exclude recipients of unemployment assistance. The comparatively low level of unemployment during 1943 and later during the post-war period was regarded as a favourable circumstance from the point of view of the survey.

Further a considerable number were old people. It is not surprising that old people become disabled and need assistance from society if pensions and other means are inadequate (in 1943 the national old age pensions were still very low). Old people are therefore of little interest in this connection. The pensionable age of 67 was therefore set as the upper age limit in the selection of material.

Persons who receive assistance for a short period were, above all, those suffering from short-term illnesses, or, in a smaller number of cases, unemployed for a short period (cf. page 13 on the powers of the social welfare offices exceptionally to give the unemployed assistance), and they leave the relief population when they recover or obtain work. These cases present other problems of adjustment than the long-term pauper population which this survey is concerned with. They have therefore not been included. There may be different opinions as to

where the boundary between short- and long-term relief should be drawn. To include only persons who have received assistance the whole year would probably be going too far; practical experience shows that many long-term relief cases can sometimes manage without help through incidental earnings etc. Here, therefore, the boundary line has been put at 6 months.

The remaining population comprised 7500 families. It thus included all the recipients of public assistance where the head of the family on December 31, 1943, was 16–67 years of age and who had received domiciliary assistance through the social welfare office for more than 6 months during this year. They form only a little over $\frac{1}{4}$ of the whole pauper population; it is, however, just these cases which are the greatest social problem and which give the public assistance staff the largest part of their work.

The various categories of the pauper population, as appears from table 3, were of rather varying composition. The institution population consisted primarily of single persons without children. Single men and married or cohabiting couples, particularly those with children, predominated among the unemployed. The old people were nearly all without dependent children, but included both single and married or cohabiting persons. Among the short-term recipients of relief families with children were far more frequent. The result was that the selected population included fewer single men and more single women than the whole relief material, but the divergence was small for married or cohabiting persons. 46.2 per cent of the total pauper population received pensions. A large number of pensioners disappeared from the material with the institution population and the aged, but the unemployed and short-term paupers, on the other hand, included only a few pensioners. In the selected population 39.3 per cent received disablement pensions.

In deciding how large a part of the selected population should be investigated, many circumstances had to be taken into account. The sample must be sufficiently large to enable a statistical analysis to be made of the various data, even when divided into several sub-groups. On the other hand it could not be so large that a thorough investigation of the situation of every single case would be unfeasible. In the one fifth sampling the number of cases in the selected population would be 1500. It would, however, be impossible to undertake so many case studies (also an equally large number of control cases). 500 cases must be considered the maximum; an investigation of this number could be expected to prove very laborious.

In a sickness survey, however, a sample consisting of 500 cases is very small. In the National Health Survey, which was undertaken in 1935-46 in the U.S.A. no less than 737,000 households were investigated (Britten *et al.* 1940). In a Canadian survey 40,000 persons (Elliott 1953), and in the Danish sickness survey (1953) 3000 persons were interviewed monthly, involving a total of over 100,000 persons. Even the smaller sample surveys of this type which have been carried out have been rather large, generally several thousand cases (e.g. the survey in Hagerstown, cf. Sydenstricker 1926; in Baltimore, cf. Collins *et al.* 1950). In the sickness survey commenced in the U.S.A. in 1957, 3000-3500 households will be canvassed every month; in this case it is a question of a continuous long-term survey. Even in large surveys, however, the sub-groups of the material for certain parts of the country have been rather limited. In the Canadian survey, for instance, the material in Alberta and Manitoba consisted of 500 to 600 families comprising about 1500 persons (Elliott 1953, Kennedy 1953). Limited sickness surveys have also been carried out for special populations. The Danish survey of paupers thus included 1035 cases (Teilmann 1954). However even small samples should be able to give valuable information. It should be possible to get some idea of the total morbidity among paupers and some information on the extent of the most usual illnesses. Rare diseases, on the other hand, would only be observed in isolated cases. It is, however, just the common diseases which are of the greatest interest particularly in an investigation concerned with the aforementioned problems. Even for more widespread diseases, however, the frequency estimations must be more uncertain than in a big material, since chance deviations are relatively larger. In calculations of significance there must thus be rather large differences between the different materials or groups for any conclusions on relative prevalence to be drawn.

In consideration of the many other questions which were included in the programme, it was not possible in the present survey to make the samples larger without seriously hazarding the performance of the plan. Even the investigation of this small sample took an extremely long time, as will be related later. It was therefore necessary to accept the aforementioned limitations regarding the problems and the drawing of conclusions on the prevalence of illness.

The selection of the material was carried out in the following way. Since the situation of the head of the family generally has greater significance for the economic position of the rest of the family than

that of the other family members, it was considered both simplest and most correct to base the selection on the persons for whom data were available in the one fifth sampling of the Stockholm Office of Statistics. Then, when necessary, information could be obtained on other members of the family during the collection of material. Therefore all cases aged between 16 and 66 inclusive, who had drawn relief through the social welfare offices for more than six months during 1943, were transferred to cards. The cards were arranged according to the number in the social welfare records and then every third card was drawn out. This sample of 500 families thus formed $\frac{1}{15}$ of the population the investigation referred to. Its distribution according to family type is shown in column 8, table 3; 40.8 per cent of the cases received disablement pensions.

A DISCUSSION OF THE PAUPER POPULATION AND THE SAMPLE

In table 4 the pauper population in Stockholm has been distributed according to sex and age, and only the head of the respective families has been included, since information on age is lacking for the female partner.

Some of the figures in table 4 are only approximate. In the Public Assistance statistics of Stockholm in 1943 there was no division according to sex, only according to family type. It was thus assumed that the head of the family for couples was always the man. However in going through the material it was found that there were occasional exceptions. A few women have therefore probably been tabulated as men in columns 3 and 5 in the table. For the same reason the exact age distribution in column 7 could not be given; instead it has been estimated with the guidance of the sample, in which the true distribution of men and women was known. In columns 3 and 5 a few hundred cases have also been counted twice, since the persons in question received public assistance through more than one social welfare office or in different ways during the year. It has not been possible to correct this either, since the exact distribution of men and women was not known.

In the age-group 16-67, 4.7 per cent of the men and 3.5 per cent of the women in Stockholm received public assistance in some form during 1943; if the female partners who received assistance through the men are included also, the percentage figure for women is 5.1. Assistance from social welfare offices had been paid out to 2.3 per cent of the men and 2.8 per cent of the women. Of these 48 per cent of the men and 66 per cent of the women had received relief for more than 6 months during the year. Thus in the process of selection the male paupers were reduced more than the female.

The frequency of pauperism increased considerably also with rising

TABLE 4. *Distribution of heads of families in the pauper and the control group according to sex and age.*

Age (years)	Total popula- tion of Stock- holm 1944 ^a	Paupers							Controls							
		Total 3 in % of 2	Total on public assist- ance 1943	5 in % of 2	Total on domiciliary assistance from social welfare of- fices for > 6 months 1943	7 in % of 2	7 in % of 5	Sample (1/15 of 7)		Non- examined regarding		Sample		Non- examined regarding		
								On selec- tion 10	At exami- nation 11	physical con- dition 12	mental con- dition 13	On selec- tion 14	At exami- nation 15	physical con- dition 16	mental con- dition 17	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Men																
16-25	39,333	715	1.8	255	0.6	60	0.2	23.5	4	2	—	—	4	1	—	—
25-30	28,238	690	2.4	325	1.2	120	0.4	36.9	8	4	—	2	6	3	—	—
30-40	57,591	2,225	3.9	955	1.7	225	0.4	23.6	15	17	—	1	17	17	—	1
40-50	45,000	2,180	4.8	955	2.1	495	1.1	51.8	33	28	—	1	29	20	1	1
50-60	35,576	2,425	6.8	1290	3.6	765	2.2	59.3	51	45	—	5	52	44	8	7
60-67	17,435	2,165	12.4	1370	7.9	825	4.7	60.2	55	50	—	4	58	46	1	5
67—	—	—	—	—	—	—	—	—	—	20	—	—	—	35	4	8
Total	223,173	10,400	4.7	5150	2.3	2490	1.1	48.3	166	166	—	13	166	166	14	22
Women																
16-25	48,660	1045	2.1	600	1.2	150	0.3	25.0	10	5	—	—	8	3	—	—
25-30	33,671	650	1.9	490	1.5	150	0.4	30.6	10	9	1	1	11	5	—	—
30-40	69,053	1540	2.2	1210	1.8	495	0.7	40.9	33	33	—	1	34	30	3	4
40-50	56,356	1745	3.1	1325	2.4	810	1.4	61.1	54	48	—	1	57	48	3	3
50-60	45,764	2380	5.2	1980	4.3	1725	3.8	87.1	115	96	—	2	116	79	6	7
60-67	22,976	2315	10.1	2005	8.7	1680	7.3	83.8	112	93	1	5	108	91	5	9
67—	—	—	—	—	—	—	—	—	—	50	—	1	—	78	4	6
Total	276,480	9675	3.5	7610	2.8	5010	1.8	65.8	334	334	2	11	334	334	21	29

^a In the Statistical Year Book of Stockholm there are no detailed figures on the population in 1943; data for the whole of Stock-
holm in this and the following tables, therefore, refer to 1944 (Statistical Year Book of Stockholm 1945, table 22).

age. In the 16-30 age-group about 1 per cent of the population of Stockholm received assistance through the social welfare offices, in the 60-67 age-group about 8 per cent. At 67 and over the number of cases drawing relief from the social welfare offices was nearly 14 per cent of the population. The selection further reduced the young age-groups, since a relatively large number of these had short periods of relief.

The investigation of the material showed that the classification of family type in 11 per cent of the cases was incorrect. The difference was usually due to persons registered as single who were actually cohabiting; thus the reports from the social welfare offices to the Office of Statistics were in some cases incorrect in this respect. In a few cases however, the situation was opposite. The actual distribution in the various family types at the time of selection therefore diverged essentially from that registered (cf. columns 8 and 9, table 3). According to the register there was only one widower, one divorced man and one unmarried woman who were cohabiting. In reality among the unmarried and previously married there were 21 of 100 men and 23 of 317 women who were cohabiting. Among the married, on the other hand, there were some who had separated; this was the case in 2 of the 66 married men and 15 of the 17 married women. This agrees with the primary information from the Office of Statistics except that in some cases there had been a change in the situation regarding children in the family. There were only 2 cases where the cause of separation was judicial separation pending divorce. In one case the husband was in prison and in 6 cases in hospital for long periods; the documents of the social welfare records had meanwhile been transferred to the wife. In other cases there was desertion. Two of the married women lived with their husbands but despite this the social welfare documents were in their names. The reason for this was later found to be that the husbands had previously worked in another district without, however, having separated from the family.

Both among men and women widowed and divorced persons were strongly over-represented in the public assistance material (see table 5). The unmarried were also more numerous represented than married persons. Even if the 66 married women in the sample who had public assistance through their husbands are included, the figure for married women would be only 6 in 10,000, that is essentially lower than for the unmarried. Thus the relief situation seems to be predominately a problem of single persons; the number of cohabiting persons is relatively small.

TABLE 5. *Distribution of persons examined by age and marital status and in relation to the total population of Stockholm 1944.*

Age (years)	Men							
	No. examined				No. examined per 10,000 persons in Stockholm			
	Un- married	Married	Wid- owed	Di- vorced	Un- married	Married	Wid- owed	Di- vorced
16-20	1	—	—	—	1	—	—	—
20-30	5	4	—	2	1	2	—	56
30-40	5	9	—	1	4	2	—	6
40-50	12	17	—	4	20	5	—	23
50-60	21	17	3	10	48	6	22	61
60-67	19	19	13	4	77	15	81	51
Total	63	66	16	21	9	5	40	34
	Women							
16-20	3	—	—	1	2	—	—	^a
20-30	11	1	1	3	3	0.3	58	37
30-40	12	7	5	9	6	2	55	35
40-50	24	2	9	19	16	1	33	58
50-60	44	4	43	24	36	2	69	74
60-67	58	3	32	19	91	3	55	120
Total	152	17	90	75	15	1	57	65

^a There was only one individual in both the sample and the population.

In table 5 the sample has also been compared with the population of Stockholm regarding age distribution. Since the sample is small the figures are naturally undependable. The number of persons on relief increased steeply with increasing age both for the unmarried and the married, however considerably more for the unmarried. In the 60-67 age-group this figure approached or even exceeded that for the previously married. Even young persons who have previously been married run a considerable risk of being reduced to pauperism.

The mean age was, as expected, far higher in the sample than in the total population of Stockholm (see table 6). The differences were largest for the unmarried, considerably less for the married and previously married, particularly among women. In the sample therefore,

TABLE 6. *Mean age and marital status.*

Marital status	Mean age in 1944 of men in Stockholm aged 16-67	Men examined		Mean age in 1944 of women in Stockholm aged 16-67	Women examined	
		No. of cases	Mean age		No. of cases	Mean age
Unmarried . .	30.1	63	51.5	34.3	152	52.7
Married . . .	42.8	66	50.6	40.6	17	45.8
Widowed . .	55.1	16	62.8	55.3	90	56.4
Divorced . .	46.3	21	51.8	46.5	75	50.6
Total	39.0	166	52.1	39.3	334	49.5

the unmarried were on the average as old as the married and divorced; among the women the few who were married were even younger on the average than the unmarried.

The prevalence of pauperism is rather varied in different parts of Stockholm. In one parish (St. Nikolai) 12 per cent of the inhabitants were on relief in 1943, in other areas there were about 6-8 per cent (particularly in Södermalm and Brännkyrka), while in some parts there were only about 2-3 per cent (e.g. Bromma and Östermalm). This uneven distribution is probably related to the age composition and the social structure of the different parts of the town. In connection with the rapid growth of the outer parishes and the fall in population in the central areas of the city essential changes may be demonstrated even in the distribution of the poor. While many parishes in the centre of the city show a falling ratio of poor persons (in St. Nikolai for instance, the ratio in 1954 had fallen to 8 per cent), in the outer parishes as Enskede and Bromma a reverse development has been taking place (1943, 4 and 2 per cent poor persons respectively, 1954 on the other hand 10 and 8 per cent respectively). In 1954 the number of paupers was lowest in Östermalm and in Vasastaden, highest in Enskede and certain parts of Södermalm. In the sample the cases were fairly proportionately distributed in relation to the number of paupers in the various parishes. The figures are probably of little interest and are therefore not given.

It is apparant from this review that certain groups are overrepresented in the sample, others somewhat under-represented. This is because the selection is directed towards the long-term paupers and there is thus no objection to this situation. The composition of the pauper population,

and to some extent also the selective principles, also meant that the material in the survey consisted of groups of rather different sizes. Women, for instance, comprised $\frac{2}{3}$ of the material, men only $\frac{1}{3}$. About $\frac{2}{3}$ of the cases were between 50-67 and only $\frac{1}{3}$ were under 50. It may naturally be questioned if it had not been more suitable in regard to morbidity to choose an equal number of men and women. Even other changes in the selection might have been considered, e.g. an over-representation of men, since women have lower mortality than men in the general population; or an over-representation of younger paupers since the existence of such persons is particularly worthy of attention. In this way, for instance, the situation of male and young paupers could have been illuminated better and with greater precision. On the other hand it is just the over-representation of women and older persons on relief which showed that these groups represent the great social problems in the population to which the survey was directed. In particular the social situation of these groups should be penetrated with great thoroughness. It was therefore considered more correct, not least with regard to other parts of the projected survey, to let the various groups be included in the sample in proportion to their actual socio-economic significance.

CHOICE OF CONTROL MATERIAL

In all investigations of the medical or social structure of groups of people, the result must be compared with the situation in the general population. The information in the official statistics is, however, limited. On many questions regarding occupation, family situation, prevalence of illness, mental condition etc. which are usually dealt with in such surveys, the official statistics give little information. Usually there are no comparable surveys of the general population. One expedient is to investigate, in addition, a control material taken from the general population. This is particularly important in investigations of large populations, as, for instance, paupers. We know that these people are more ill than the general population, often older and partially disabled, but we do not know very much more than this. It can only be assumed that practically anyone, under unfortunate circumstances, may be forced to seek assistance.

Such a control material should comprise persons who are not on relief or in other dependent situations (as ill, unemployed, in institutions and so on). Since paupers may be expected to consist of widely differing

categories of people, the control material must also be able to include any individuals. The most suitable method should therefore be to draw the control cases from the census register for Stockholm.

The selection should not be made completely at random. The process of impoverishment presumably takes place in somewhat different ways for men and women. Since the sex proportions of paupers differ from the general population, it would not be possible to compare the sample if the choice of controls was quite free, without making an adjustment for sex. Presumably different mechanisms play a part in the process of pauperization among young and old persons. In a free selection, therefore, a comparison would require complicated corrections even with regard to the age distribution. The same applies to the marital status. It may well be possible that the developmental situation differs for married, unmarried and previously married paupers. Thus to ignore the different distribution of marital status would provide a troublesome source of error.

It is clear that the same distribution in the controls and paupers regarding sex, age and marital status would save a great deal of work. Other factors in selection might also come into question. It is widely known that the burden of maintenance plays a part in the causes of the need for public assistance. One could therefore also start from the family types in the public assistance statistics. The possibility could also be considered of including the number of dependent children in the selective factors. Some limitation of the number of selective factors is, however, necessary for practical reasons, and then there are more important factors to be taken into consideration.

One such factor is the social status. If the sample of paupers is compared with cases selected at random with regard to social status from the census register, and it is observed, for instance, that schizophrenia is more frequent in the paupers than in the general population, it would be difficult to draw any conclusions from this of interest in illustrating the composition of the pauper population. It has, as already mentioned, been asserted that schizophrenia is more prevalent in the lower social strata than in the higher. The high prevalence of schizophrenia in the paupers could thus be due to the fact that they are recruited from lower social strata than the control cases. Also differences in social status between the two samples should therefore be eliminated if possible. In doing this one cannot base the selection on income. It is just the connection with the economic situation which is to be investigated. On the other hand one could base the selection on occupation. This is also

easiest from the practical point of view, since the census register includes information on occupation. Naturally the occupational designation is an inadequate instrument for judging the social status of an individual (see Boalt 1954, and others). It may perhaps not always give a correct idea of the actual occupation. The information may be too old or perhaps too "superior". Some occupational designations are very general and can cover persons with a different status both at the place of work and in society. None the less, consideration of the occupational designation in the census register should reduce the differences regarding social status which would otherwise exist between the two samples. The risk of deceptive differences of the type exemplified already should at least be reduced.

Since the paupers are unevenly distributed in the city and the various districts of Stockholm have to some extent a different social structure, it would also be desirable for the controls to have the same distribution in the city as the paupers.

On the other hand the relations to the public assistance services should be different. The controls should therefore not be chosen from persons who received assistance during 1943. Alternatively it would be possible to exclude all persons who have received assistance at any time. This, however, would aggravate the difficulties in finding suitable control cases. Particularly during the thirties many unemployed persons received temporary help from the social welfare offices, among other places. The existence of some such temporary relief cases in the control material should not have any great effect, since the problem concerns, in the first place, development into chronic pauperism. From some points of view it would even be of interest to include just these persons who have not remained paupers. The study of their development *from* poverty could actually complete the study of the development *into* chronic pauperism of the other relief population. If it were sometimes considered desirable to compare the permanent paupers with persons who had never been on public assistance one could then exclude pairs where the control cases have received public assistance.

This would be seven selective factors. It would be quite possible to consider more. However the more the selection is fettered in this way the harder it becomes to find suitable cases. Too many selective factors also limit the range of comparisons; for the controls cannot be used to illustrate the connection of these selective factors with the development of poverty.

THE SELECTION OF THE CONTROL CASES

In order to obtain the same distribution in these respects in the control cases as in the paupers, an attempt was made to find a "social twin" for every pauper in the sample. The "social twin" should not have been on public assistance in 1943, but have the same sex, age, family type, marital status and occupation and live in the same parish as the pauper.¹ The order in which the selective factors were taken also marks their importance in relation to each other in the selection. The demand for agreement for one factor must be relinquished if it is necessary to obtain an acceptable agreement in a preceding factor. Otherwise the following principles were followed. Sex must always agree. Preferably the "social twin" should be born in the same year, but a deviation could be accepted of 1-2, at most 3 years, if this made it easier to find cases which fulfilled the other selective demands. When the controls were selected most of the paupers had already been investigated, and the actual family type on December 31, 1943, was known in all cases from the documents of the social welfare records. This was therefore made the basis of the selection. Complete agreement should actually be demanded. However the census register did not show which unmarried persons were cohabiting. Single persons were taken instead, and it was assumed that a number of them would be cohabiting. With regard to marital status, in a few instances an exchange of divorced and widowed persons was permitted. Regarding occupation an attempt was made first to find cases with the same designation. If that failed an attempt was made to find occupations that at least belonged to the same class in the special list of occupations which was drawn up for the survey. If it still proved impossible to find any suitable case, the "social twin" must under all circumstances belong to the same social group according to the classification of voters in the election to the Second Chamber of Parliament.² The residential area was considered the least important selective factor. First an attempt was made to find a "twin" in the same parish, or failing this, one who at least lived in the same district (i.e. Södermalm, Norrmalm, Östermalm, Vasastaden, Kungsholmen, Staden mellan broarna, the western suburbs, the southern suburbs). In case of necessity the demand for agreement regarding residential area had to be given up altogether.

¹ The method of "social twins" has been used by many other authors. S. Gleuck and E. Gleuck (1950) have given a detailed description of the procedure. Their method, however, differed in many respects from that used here.

² This divides the voters into three social groups roughly corresponding to "the upper class" (I), "the middle class" (II) and "the working class" (III).

The actual selection was carried out in the following way.

1. Cards were set up with the selective factors for each pauper. These were obtained from the documents of the social welfare records or in most cases from the survey case-papers which were then already written up. Then for each case 5 persons with, as far as possible, the same sex, year of birth, occupation and parish, were drawn from the current address register (*allmänna registret*) that the Census Registration Office of the City of Stockholm had drawn up. The search through the address register commenced with the initial letter of the name of the pauper.

2. The family type and marital status of these cases were then sought in the census register. Some cases were discarded during this process and had to be replaced with others drawn from the address register on the same principles. Often this replenishment must be repeated, and 15–20 cases be sought out for each pauper.

3. When five cases were finally obtained which, in so far as was possible, filled the demands of selection, information was obtained from the social welfare records concerning public assistance. Persons who had received public assistance during 1943 were sorted out.

4. One of the remaining cases was drawn at random and included in the survey.

THE DIFFERENCES BETWEEN THE "SOCIAL TWINS"

In the selection complete identity between the paupers and controls has been attempted in 6 of the factors. A comparison between the two samples regarding these selective factors shows how the selection evolved, and how serviceable such a sample of the general population is as control material.

To begin with it must be mentioned that among the control cases there were 55 men (=33 per cent) and 85 women (=25 per cent) who had received public assistance at some time before 1943. Thus rather many have had contact with the social welfare offices at some time or other. This agrees well with what is known on the risk of falling into a predicament where the necessity for public assistance arises. In 1951, at the age of 66, there was a total risk of this for 28 per cent of men and 35 per cent of women (Inghe, unpublished data). The fact that, on the contrary, fewer women than men in the control material had received public assistance is probably due mainly to the strong under-representation of married women. Married women run greater

TABLE 7. *The difference in family type between the "social twins".*

Difference in family type	Between paupers and controls on selection	Between controls on selection and at medical examination	Between paupers and controls at medical examination
Same family type	438	438	393
Family type in controls not definitely known	—	18	18
One with a partner but not the other	44	36	64
One single, the other married . . .	5	3	8
One living with children but not the other	13	5	17
Total	500	500	500

risks than unmarried women, particularly in the young age-groups, of falling into a predicament where they must seek assistance.

Sex agreed throughout.

Regarding *age* the selection succeeded rather well. In 98 per cent of the cases the difference was less than 2 years, in 8 cases it was 2–4 years. In 2 cases there was rather a large age difference (6 and 10 years respectively), which was due to misprints in the address register. The age differences were discovered only when the collection of material was completed, and it would have caused considerable trouble to change cases.

Finding an identical *family type* was, for several reasons, a more difficult task. Regarding cohabiting persons one had to take a chance. At the selection it proved impossible to find suitable cases with identical family type in a further 4 per cent of the cases. In investigating the controls it was found that the actual family type did not always agree with the census register. In 4 per cent of the cases, in which a medical examination was not carried out and information generally was incomplete, the family type must be denoted as not definitely known. Some were living with a partner, some had married towards the end of the year, or had given birth to a child without this having at that time been entered in the census register; or they no longer lived together with dependent children. One or two had separated without divorcing.

If the various sources of error—the difficulties in finding identical cases in the register and the unreliability of the register—are summed, it is found that the family type agreed for 79 per cent of the "twin pairs" (see table 7). In 5 per cent the difference was due to the dif-

difficulty in finding a control case with the same family type, while in 13 per cent it was due to cohabitation, a source of error which it was impossible to avoid with this method of selection. Despite these weaknesses in the selection, the frequency of the several family types in the samples proved to agree fairly well (cf. table I in the appendix). In the control material there were among the men somewhat more and among the women somewhat fewer, single persons than in the relief material. Among the paupers there were also somewhat fewer married or cohabiting persons without children than in the control cases. For the most part, however, the differences between the pairs were evened out.

Even regarding *marital status* there were some difficulties in finding suitable control cases. It was successful in 77 per cent of the pairs. An occasional interchange of widowed and divorced persons (13 per cent) had been anticipated as already mentioned. In 7 per cent of the cases, however, married persons, and in 3 per cent unmarried persons had a "twin" who was divorced or a widowed. In no instance, however, had a married pauper received an unmarried "twin" and vice versa. The distribution of marital status in the two samples also showed that, despite these weaknesses, there was a reasonably good agreement, however not so good as for family type. There were somewhat fewer divorced persons and more widows and widowers in the control material (see table I).

The greatest difficulty was in finding control cases with the same *occupation* as the corresponding paupers. First sex, age, family type and marital status had to agree fairly well. Time and time again it was necessary, after a lengthy search in the register, to take a control case with a more or less divergent occupation. One particular difficulty was that many paupers had ceased working. If they had not left work a long time previously it was possible to take their last occupation. Particularly among women, however, there were many who had been without gainful employment for a considerable period. Some were classified in the census register as housewives, widows, previously employed in some occupation and so on. The corresponding control cases were sought under the same headings. Since most of the women who had been married were widows or divorced, it was not possible to use the husband's occupation.

It therefore proved impossible to find identical occupations for all the "twin pairs" (see table 8). It was successful in only 59 per cent of the cases. If pairs are included where both were without an occupation,

TABLE 8. *The difference in occupation between the "social twins".*

Difference in occupation	Between paupers and controls on selection	Between controls on selection and at medical examination	Between paupers and controls at medical examination
Identical occupation	296	421	279
Same class in the list of occupations	22	6	23
Different classes in the list of occupations but same branch of industry and social group ^a	38	13	44
Different classes in the list of occupations and different branch of industry but same social group ^a	24	14	32
Different social group ^a but same branch of industry	16	3	17
Different social group ^a and branch of industry	5	1	6
One with an occupation, the other without	58	—	58
Both without occupation	41	42	41

^a See note page 70.

an identical situation regarding occupation existed in about $\frac{2}{3}$ of the "twin pairs". At the medical examination it was later found that some did not have the occupation which was entered in the register. The result was complete agreement concerning occupation in 56 per cent of the pairs, while both were without occupation in 8 per cent. In a further 20 per cent they both belonged to the same social group (see p. 70, footnote), while in 5 per cent even the social group differed. In 12 per cent one of the "twins" had an occupation while the other was without.

In analysing the occupational situation, the last occupation was also tabulated, in the extent to which it became known at the medical examination. Despite the rather considerable differences between the "twins" the distribution of the last occupations did not show very large divergences between the samples (see table 9). For both men and women there was, however, a shift to more skilled work among the controls. It was probably above all the difficulty in finding suitable "social twins" for the many paupers who were without an occupation at the time of the selection which, despite the pains taken, resulted in such differences in the distribution.

TABLE 9. *Last known occupation.*

Sample	No. of cases	whereof in %			
		social group II ^a	skilled workers	semi-skilled workers	unskilled workers
<i>Men</i>					
Paupers	163	19.0	14.7	11.7	54.6
Controls	162	22.8	19.8	13.0	44.4
<i>Women</i>					
Paupers	313	17.3	3.2	19.5	60.1
Controls	319	24.5	6.3	15.0	54.8

^a See note page 70.

The control cases came in this way to lie somewhat nearer the general population than the paupers.

The least important factor in selection was considered the residential area. It was found that the "social twins" lived in different parishes in 79 per cent of the cases and in 53 per cent also in different districts. The distribution of the two samples in the respective parishes however, showed only small differences which could well have been fortuitous.

The selection of the controls thus resulted in a rather good agreement in the distribution of sex and age and a fairly good agreement for family type, marital status and residential area. For occupation the agreement was not fully satisfactory, a circumstance which it has been necessary to take into consideration in judging the results. The stratified random selection should in any case have made it easier to compare the two materials without continual corrections of different kinds.

CHAPTER 5

THE MATERIAL

INTRODUCTION

In ascertaining the paupers' development etc. penetrating data were required for every case, with detailed descriptions that brought out the characteristic and unique qualities of the individuals. These data were often necessary even for an adequate psychological diagnosis, an analysis of the causes of the relief situation etc.

It was, however, also necessary that as many interviews as possible were made. In certain surveys of limited populations the risk of non-examination is not very great. This applies, for instance, to materials of hospital patients, soldiers or persons subjected to corrective treatment by society. In the present survey, on the other hand, the material was not within easy reach and no pressure could be used. Participation was completely voluntary. It was therefore necessary to induce a positive attitude towards the project. This has set its mark on the method, which has necessarily been adjusted to the attitude of the examinee. It has also affected the collection of data needed for the elucidation of the morbidity situation.

In planning the survey it was foreseen that one must advance with the greatest care in the questioning. In working out the methodology a pilot survey was made comprising a hundred paupers. Many of the persons interviewed were found to be sensitive and nervous, others markedly reserved in their attitude. The conversation had often to be conducted cautiously and, if possible, given the character of an unforced exchange of opinions. Questions on concrete facts to supplement the examinee's own statements must be inserted as spontaneously and naturally as possible. Often the interviews must be given a directly practical course and be complemented with medical or social treatment of a suitable type. This often made the conversation time-consuming, and several interviews were required, but gave, in compensation, better opportunities of studying the behaviour of the person concerned. Attempts at speeding up the conversation by more systematic questioning were sometimes met by violent reactions which jeopardized the completion of the interview.

In the collection of material, therefore, the so-called undirected interview method has been used, which is applied in medical consultations and social offices everywhere, and where an important component is the establishment of a confidential atmosphere between the interviewer and the informant.

DATA

The examination of the patients comprised interviews, medical examinations, home visits, information from other persons and extracts from various documents and registers. Apart from the exceptions described later, the material was precisely similar for the controls as for the paupers. The data which were collected were of the following type.

Physical Anamnesis and Examination

In the introduction it was stated that the aim of the physical examination was to illustrate the extent of illnesses of significance for the social situation and the need for relief. On the other hand it did not aim at a health survey. In considering the procedure in the survey this is an important distinction. Other methods, namely, are demanded in judging the influence of illness on the social conditions of an individual than in a health survey. In estimating the social consequences of illness a detailed history is required, including information on the social situation of the individual. The physical examination may vary in thoroughness from case to case, depending on the anamnestic data and other information (medical certificates, hospital case-papers etc.). If there is nothing to suggest disability or other social consequences, the physical examination is of rather secondary interest. A health survey on the other hand, requires systematic physical examination of every individual, following a more or less comprehensive scheme.

In the present survey a somatic examination of the first type was considered sufficient. A health survey would naturally be of interest also. An extension of the programme in this respect seemed, however, in the planning of the survey, to be difficult to carry out. It was presumed that the collection of material would meet with considerable obstacles. These could be expected to become greater in proportion to the increases made in the scope of the programme. One of the details which it was assumed would meet with difficulties, particularly in the control cases, was just the physical examination. It was feared that if a physical examination was made a compulsory part of the programme, it would jeop-

ardize the whole project. Already in the pilot survey it was found that many patients thought it a trouble to undress, others were unprepared for this and would like to have changed their underclothes. A few considered that they did not have time. Some thought they were in good health and therefore a physical examination was superfluous, while others thought it was sufficient with an examination of this or that organ which they feared was out of order. Sometimes one had to be satisfied with studying the parts of the body which were directly available for inspection. Difficulties of this type were met with particularly at home visits. These had sometimes to take place without previous warning. The patient could be in the middle of his work or the home might be full of people. In some cases the physical examination could be postponed to a later date; in others one had to accept the situation in order not to jeopardize the other parts of the survey. In a Danish survey of a corresponding type the same experience was made (see Teilmann 1954).

The main weight was therefore laid on the somatic anamnesis. Current practice was followed in taking this, with direct questions on the occurrence of general illness or diseases of various organs. A systematic perusal of a specific list of illnesses in every case may have been desirable, but would have been too lengthy and tiring, and therefore, in some cases, could have endangered the other parts of the interview programme. As a rule this part of the interview did not meet with any difficulties; the history, in most instances, could be made fairly comprehensive and detailed.

In as many cases as possible a physical examination was also made. This included an estimation of the general condition, determination of height and weight; inspection of skin, posture, and organs of movement; palpation of the lymphatic glands and the thyroid gland; examination of the buccal cavity and pharynx, nose, eyes and ears; percussion and auscultation of the heart and lungs; palpation of the abdomen, and determination of the blood pressure. In addition a summary status praesens of the nervous system was made, with testing of the most important reflexes, muscle function and sensibility, gait and balance. When there was reason, and facilities, the examination also comprised the hemoglobin, the blood sedimentation rate, and urine tests for albumin, sugar and sediment. This examination procedure was modified according to the situation and facilities in each individual case.

In obscure cases and particularly if a pathological condition was suspected which required further analysis, the case was referred for

further investigations to a hospital outpatient department for roentgenography, electrocardiography, estimation of the basal metabolic rate, laboratory tests, or other special investigations. If the patient was found to be in need of medical treatment, this was also dealt with in a suitable way (by direct therapeutic measures, reference to a general practitioner, outpatient department, hospital, rest home, home for old people and so on). Such measures created a certain good will and were particularly likely to make the patient co-operative in future.

Both in the history and the physical examination, trivial and short-term illnesses were ignored (as e.g. acute infections of the respiratory tract, and digestive organs, minor accidental injuries etc.). If the patient was temporarily ill it was considered preferable to wait until he recovered in order that the comprehensive interview programme and medical examination might more easily be carried out.

At the interview information was also obtained on the state of health of the partner.

Mental Anamnesis

The medical examination also included questions on the prevalence of psychopathic symptoms such as nervousness, anxiety, fatigue, irritability, obsessive ideas and so on. If nervous symptoms of any kind had occurred previously, much pains were spent in obtaining detailed information on the environmental situation at the time, the clinical picture and course of the illness. The patient was also interviewed on his personal disposition, behaviour and attitudes in different situations. In addition attention was paid to the occurrence of mental disorders or behaviour disturbances in the parents, siblings or children of the patient and also the partner.

The extent of this interview on the mental condition was to a considerable degree dependent on the patient's own attitude. Some persons reacted extremely negatively when the conversation was directed to problems of such a "personal" nature, while others plunged into them spontaneously and enthusiastically. One attempted to let the conversation run as freely and unhindered as possible in this part of the interview, but direct questions could generally not be avoided.

Observations of Behaviour

During interviews, testing and home visits and also physical examinations, notes were made on the behaviour of the patient. These notes were tabulated under the heading of mental condition, which contained

a description of how the patient acted during the examination, both in respect to normal psychological and pathological traits.

Testing

In an investigation of this type one can only study the individual for a few hours on one or a few occasions. This must involve considerable uncertainty in the psychological diagnosis, for which reason it is particularly desirable to supplement the medical examination in these surveys with certain tests.

For measuring intelligence Lindberg's revised edition of the point scale (1943) was used. It is a rough method, but fairly quickly performed. More time-consuming tests would have tired the patients too much. Intelligence testing was expected to be one of the details which would cause most resistance; this was confirmed also, during the collection of material.

As a supplement and check in estimations of personality characteristics the Rorschach test was used. In the opinion of many authors it is the projective test method which gives the best results, and is probably the one most frequently used. It is also considered very suitable for multidimensional diagnosis (cf. Bohm 1951). The interpretations were given the form of short descriptions of personality, terminating with the clinical-diagnostic conclusions.

Social Interview

At the social interviews, the contents of which are not otherwise taken up here, an attempt was made in an informal way, and without being tied to a special questionnaire, to obtain an idea of the examinee's interests, attitudes and behaviour in different situations etc. The aim was not to give a detailed picture of these phenomena, but to broaden the study of the personality in the individual cases.

Home Visit

A home visit was, if possible, made in every case. In some instances the whole medical examination was carried out in the home since the individual in question did not attend at the consulting room. Sometimes a home visit was refused. Observations regarding different people's method of arranging matters in their home, their behaviour in the home milieu, relations to other members of the family etc. are a not unimportant guide in the study of the personality.

Information

The information which was obtained on the persons interviewed was of a very varying nature. Here are given only the sources of information which were of direct significance for the morbidity calculations and the psychiatric diagnosis.

Public Assistance documents in Stockholm.—These existed for all paupers and about $\frac{1}{3}$ of the controls. Excerpts were made from all these documents. Particularly for the cases that had been on relief a long time it was a question of bulky records whose perusal was very time-consuming, but provided very detailed data on the patients' social situation at different periods, their state of health (from medical certificates or in other ways), disability etc. Often there were detailed descriptions of the patients' behaviour on different occasions. To the extent to which the partners had their own social register documents (e.g. made out before marriage or after divorce) these were also obtained. The same applied to the documents of children living at home. In these cases however, the excerpts referred only to data on the patient or relationships to the patient.

Child Welfare documents in Stockholm.—These include partly social and medical data in connection with the means test in application for maternity assistance, childrens allowances etc. and partly investigations in connection with complaints to the Child Welfare Committee on the home conditions of the child etc. Particularly when the child has been taken in hand for public care or protective upbringing, the data were often very detailed. The reports often covered several years and could contain much revealing information on the behaviour of the patient in different situations. When the other partner had a child with another person, the child welfare documents were sought for these cases also.

The Temperance Committee documents in Stockholm.—Even the documents of the Temperance Committee are often comprehensive dossier in which the patient's situation may be followed for many years. Generally there is a great deal of data on social relationships, often also medical certificates. The most important part was the detailed descriptions of the patient's situation regarding alcohol.

Hospital.—If the patients did not object, and it was seldom they did so, information was sought from all the hospitals where they had received treatment. From Stockholm hospitals the case-papers were generally lent out or extracts sent. This applied also to many hospitals outside Stockholm. Otherwise a resumé of the case was obtained. In many somatic case-histories there was also information which illuminated the mental condition of the patient.

National Pensions Board.—From this agency documents were borrowed on persons who received disablement pensions. These documents contained both economic investigations and medical statements.

Schools.—A questionnaire was sent to all schools with enquiries concerning the school period, absence, class marks, industriousness, conduct, interest, remaining a second year in a class, intelligence, psychological disposition and home conditions. In some cases no reply was received despite repeated requests.

In others it was declared that the records, for various reasons, could not be reached. In a large number of instances, however, detailed replies were given, sometimes even for persons who had left school more than 50 years previously. The information was sometimes supplemented with the personal impressions of teachers or other persons in the district who had known the individual in question.

Place of work.—It is obvious that it was of greatest interest to obtain information on the behaviour of the patient at work. Inquiries from the employer, however, could only be made after the patient had given express permission. Such permission was sometimes difficult to obtain, and only exceptionally applied to the place of work where the patient was employed at the time of the medical examination. In a considerable number of cases, however, the employer could be questioned on the patient's capacity for work, behaviour and attitude to work-mates and foremen.

If it was discovered that the patient had stayed in a *children's home, approved school, institution for alcoholics, home for old people* or other *social service institution*, enquiries were always made there. Information could always be obtained on the environmental situation at the time of admission, and the behaviour of the patient in this connection, and in some cases, on the conduct of the patient and his state of health during the stay in the institution.

If the patients gave permission, which they generally did, enquiries were also made from the *physicians* they had attended. For the paupers this was usually the city medical officer in Stockholm. Usually detailed data on the patients' condition were provided with the greatest courtesey.

In so far as was possible the material was also supplemented with *interviews with various persons* on the individuals investigated in the survey.

Public Assistance Officers.—The social workers who had been in contact with the relief cases or previously had contact with the control cases were always interviewed on their impression of the persons in question. They were sent a special questionnaire too. This contained questions on the indications for relief, the patient's capacity for work, attitude to work, personality, characteristics, family situation etc.

If the patient had had contact with social workers outside public assistance, these were interviewed in so far as was possible.

Relatives, acquaintances etc.—Finally, in some cases the medical examination was also supplemented with information from relatives, acquaintances, work-mates or other persons in the patient's own milieu. Usually the spouse was interviewed, that is generally the wife, since female paupers are usually single. Sometimes the children were interviewed and sometimes, in the younger paupers, the parents. This occurred irregularly and was completely dependent upon the patients' consent. The interviews generally could not be made as thorough as with the patient himself, but could be made to deal with a point which was considered of special importance, or had been incompletely illuminated in the rest of the survey. In particular an attempt was made to obtain information on the behaviour pattern of the patient in different situations.

These interviews were the most important source of information in the cases where the patient had died before the medical examination had taken place. Particularly in such cases these interviews were difficult undertakings, which had to be handled with the greatest care and tact.

In addition to what has been recorded here, abundant information was obtained from other sources, mainly concerning various social conditions. A detailed report of all sources of information will be given in a future publication.

Epicrisis

The material formed a comprehensive dossier. All the data of interest were collected in a case-paper. This was summarized in an epicrisis. The case-paper was later used in the further analysis of the material.

THE COLLECTION OF MATERIAL

Personnel

In the beginning it was planned that the medical examination should be divided into three parts, a physician was to undertake the medical part of the examination, a social worker the social investigation and a psychologist the tests. It would have been preferable if different doctors had undertaken the somatic and psychic examinations, but it was presumed that it would be difficult to persuade the patients to accept no less than 4 different interviewers.

It was further considered important that the investigating team consisted of the same persons the whole time, so that the various cases would be judged from as nearly as possible the same basis.

Finally it was thought desirable, particularly for the psychological estimation of the patients, that each person in the team worked independently, and in every individual instance tried to form an opinion on the case, without first acquainting himself with the results of the investigations of other members of the team.

None of these lines of action proved feasible. It was soon found that in many cases it was impossible to arrange meetings with the patients for three different interviewers. It could go well for the first, and perhaps the second, but when the third came the examinee often lost patience. Usually it was impossible to let the various interviews follow immediately after each other, as each interview could take several hours. In some instances it was so difficult to make an examination that a more summary procedure became necessary. Apart from the first cases, therefore,

TABLE 10. *Distribution of interviews among the various collaborators.*

Interviewer	No. of paupers	No. of controls
<i>Doctors</i>		
GI	327	261
JE	72	—
JT	30	—
WW	—	154
Other medical officers in public assistance service .	19	5
Hospital doctors	3	7
Not interviewed by a doctor	49	73
<i>Social case-workers</i>		
HGO	345	14
ML	—	164
GB	64	99
KB	—	44
Others	35	75
Not interviewed by a social case-worker	56	104
Total no. of cases	500	500

the investigation has been divided up between two persons. A physician has carried out the physical examination and interviews on the medical and psychological history, while a social worker has undertaken the social interview and also the home visit. The social worker has carried out the tests and the scores were afterwards interpreted by a psychologist. The psychologist also had a social worker's training, and in a considerable number of cases undertook both the social interview and the testing. In a smaller number of cases, which were particularly difficult to manage, the physician had also to make the social interview and carry out the tests.

It was not possible to maintain the staff of helpers unchanged. The collection of material must generally be carried out alongside routine work, and it was found to be extremely time-consuming. It was necessary to obtain some extra helpers for the project if it was to be carried out at all. Payment for this work was, however, low, and change of personnel could therefore not be avoided. The distribution of the various cases among the respective collaborators is shown in table 10. I was

the only one who was able to take part the whole time, and carried out about $\frac{2}{3}$ of the medical interviews and in addition a large number of social interviews. About $\frac{1}{4}$ of the paupers were examined by two assistant physicians, while more than $\frac{1}{3}$ of the controls were examined by a third assistant. In a few cases help was given either by other public assistance medical officers who had known the person in question for a long time, or, when the patient had been admitted to a mental hospital or treated at a psychiatric department in a general hospital, by the respective medical officers.

The social interviews of the paupers were undertaken by a social case-worker, who also interpreted the Rorschach tests. Towards the end she was assisted by one full-time and some part-time social case-workers. At the investigation of the controls this social case-worker could only continue with a few social interviews, however she did all the interpretations of Rorschach tests. The social interviews of the controls was led by another full-time social case-worker assisted by two others. Some, however, were carried out by part-time workers. Altogether 8 part-time social case-workers co-operated in the collection of material with an average of 14 interviews each.

Procedure

For the paupers the documents from the social welfare records were obtained first. These gave a general orientation of the case. After that the officers at the social welfare office enquired if the patient was willing to come to my office in the public assistance premises. In other cases contact was made directly from my office. Usually the patient then attended, and a medical examination could be carried out. In some cases the medical examination had to be carried out in the home instead.

In the control material also the documents of the social welfare records where such existed, were examined first. Then all controls were given an account of the character of the survey, and its aims, and an appeal from the director of the Public Assistance Board in Stockholm for co-operation. The persons in question were then contacted by the social case-workers by telephone or in the home.

The investigation of the paupers commenced in the autumn 1944. In the beginning it did not meet with any difficulties, and after a pilot investigation of the first 100 cases, preparations for the more hazardous investigation of the controls began. The selection of these cases was extremely time-consuming, and the medical examinations could not

TABLE 11. *The year of medical examination.*

Year	No. of paupers	No. of controls
1944	68	—
1945	194	—
1946	232	44
1947	3	352
1948	—	27
1949	3	13
1950	—	64
Total	500	500

be commenced until the summer 1946. Also here it went surprisingly well in the beginning. Later, however, the difficulties became greater. Some of the paupers, but in particular the controls, proved difficult to contact. They had moved, or were never home, and gave no sign of life when letters were sent. Some, also, took a directly negative attitude, and great persistence and tact were required to get them to co-operate. In a small number of cases one was forced to give up.

The medical examinations therefore took a long time, since the collection of material must be mainly carried out as a spare time activity. As long as the collection of written material continued, attempts to make the medical examinations as complete as possible continued also. The time distribution has been recorded in table 11. In the instances where a medical examination was not carried out, the year given for the examination is that when the most important oral and written information was obtained. It is apparent that the examination of the paupers was practically complete in 1946. Six paupers examined later were persons who disappeared and then turned up again. Most of the controls were examined by 1947, but the remainder took a long time. In 1950 journeys were made to those who had left Stockholm and some final attempts with persons who had previously refused to be examined.

THE DEFECTS IN THE MATERIAL

An important question is the shortcomings in material collected in this way. This includes such problems as differences in investigation methods, in the collection of material, reliability of the data obtained, and the completeness of the material.

Differences in the Investigation Method

The investigation method exhibited certain differences in the respective cases, which were partly due to the inadequate economic resources at the disposal of the survey, but also are probably unavoidable in surveys of this type.

1. Change of interviewer

It is well known that the personal character of the interviewer is an important source of error in surveys of this type (Hader and Lindeman 1933, Young 1935, Bogardus 1936, Brown 1944, Karlsson 1951, Horwitz 1952, Magde 1953, Dahlström 1957, and others).

Such sources of error would not have been eliminated even if the same parts of the medical examination were carried out by the same member of the investigating team, as was attempted but found unfeasible in this survey. The possibility cannot be excluded that the dissimilar attitudes to the subjects of the experiment, which must be expected in an interviewer, might have had a systematic bias, for instance regarding the sex or social situation of the cases. It is also known that it is sometimes difficult to penetrate and define the basis of judgments and attitudes which mark an interviewer.

The distribution of the same parts of the medical examination among several persons could therefore have been an advantage. Tendencies to error in the various investigators might perhaps to some extent have counter-balanced each other. A condition for such a method would be, however, that the cases were distributed according to a definite method among the several collaborators. This could not be done. Some, for instance, had only to work with paupers, others with controls. The more experienced must be entrusted with persons who were particularly difficult to handle.

This source of error probably has varying importance in different types of data. The physical examinations, in the extent to which they were made, were probably performed along the same lines. But change of examiner may have played some part, for instance in estimating disability. The same applies to observations at the home visit. Above all descriptions of personality may have been influenced by the physician or social case-worker who carried out the interviews. It can hardly be avoided that power of observation, previous training in assessing character, and not least the use of psychological language and voca-

bulary, influence the form of the description, and thus also the diagnosis.

The only way to counter this source of error was through careful instructions to the various collaborators, and intimate co-operation on the cases. The physicians discussed the cases among themselves continuously. I interviewed cases that were difficult to judge also, generally after most of the documentary material had been collected. The social case-workers were instructed in the details of how the social interviews should be carried out, and the completed interviews were submitted to me. Where necessary the interview could be complemented at the later medical examination. They were also trained to carry out the Rorschach protocol.¹ Most of them had previous experience of testing with the point scale.

2. The delay in the collection of material

Another considerable difficulty was that the collection of material covered so long a period. This was partly because the work was found to be far more comprehensive than was expected from the beginning, partly because, on account of the expense, it was not possible to employ staff for this project alone.

In this way a large number of cases were examined later than had been intended. The analysis of the social data, it is true, referred to the situation at the turn of the year 1943/44, that is, the time of the selection; but some interviews took place several years later. This may have affected the reliability and the fullness of details, particularly concerning the situation at the time of selection.

Some of the factors could not be referred to the circumstances 1943/44. The morbidity, for instance, must apply to the time of the medical examination. The control cases have thus come to be an average of nearly two years older than the paupers (2.1 years for men and 1.9 for women). Both samples were composed largely of old persons. During two years many of these must have aged perceptibly, and morbidity increased in proportion. The controls must thus have shown

¹ Such recording by persons who are not fully trained is criticised in the Rorschach literature (Bohm 1951). It is possible that the tests were somewhat less profitable because of this; it was, however, economically impossible to employ persons trained in the Rorschach technique for social interviews throughout.

a somewhat poorer state of health and a larger number of aged persons than if the medical examination had taken place at the time of the investigation of the paupers. It is apparent from the following report that illness and senility were more widespread among the paupers than among the controls. Thus the result of this shift in time of the medical examination must, in the first place, have meant that the difference between the two materials was too small. The excess mental and physical morbidity should, in actual fact, have been even greater than that depicted by the figures obtained. There is no reason to expect that the shift would have caused any deceptive differences between the two materials. This circumstance may therefore not have seriously reduced the value of the material.

During the collection of the material the social composition of the population in question changed also. About 7 per cent of the paupers were no longer on relief at the time of the medical examination. Among the controls, on the other hand, about 12 per cent had commenced drawing relief. For 8 per cent of the paupers and 14 per cent of the controls the family type had changed, and for 4 per cent of the paupers and 9 per cent of the controls there had been a change of marital status. The most common cause was death of the spouse or separation; in some of the instances the changes were due to the children reaching the age of 16. There were also instances of previously married or unmarried persons marrying or cohabiting. On the whole this development led to a somewhat increased difference between the samples regarding family type and marital status (see table I).

The greatest difficulty was in assessing the risk of a shift in the bases of judgements, evaluations and direction of observations of the investigating team during the comparatively long period in which the collection of material took place. The occurrence of such errors are as difficult to dispute as to measure. It could be demonstrated if it were possible to compare the results of the examinations at the beginning and end of the collection of material. This presumes, however, that the order in which the individuals were examined was unrelated to their character. This was not the case at all. The most easily influenced and positive individuals dominated in the early examinations and the most negative among those last examined. With regard to morbidity these circumstances have probably not been of great importance; it is probably the psychological classification of the patients in particular which might have been affected by this source of error. This part of the survey is published elsewhere.

3. *Quantity of data*

A third circumstance of importance in this connection is that the written material is very uneven in character. For some cases there is plenty of data in documents and case-papers. For others there is almost nothing except the information in some registers. For the healthy persons there is nothing to be obtained from hospital case-papers and practitioners' records. For those who are ill, on the other hand, there is a mass of data which does not only apply to the illness, but also to social relations, behaviour, etc. For paupers there is extensive information to be drawn from the social welfare documents, which is completely lacking for more than half of the controls. On the whole it may be said that far more was known about persons who had been ill or had social difficulties and conflicts than about the others, even with regard to circumstances which were not directly connected with their illnesses or difficulties. The picture one obtains of the situation of healthy and normal individuals must therefore be far more sparse, hazy and lacking in detail than that of sick and maladjusted persons. Regarding the former one is to a very great extent referred to what emerged from the actual interviews.

It should be pointed out that a similar unevenness may probably be found in the interviews. It is easier to make a full and detailed description of deviations than of ordinary, every-day situations. First of all the vocabulary is poorer in the latter respect, and physicians and social case-workers are also less experienced in describing such conditions. In addition the examinee has less to relate. They may perhaps be irritated if the interviewer is insistent, and wants to have more detail on something they themselves consider very commonplace.

The Reliability of the Information

The reliability of data collected in this way must also be considered. As previously pointed out (page 87) errors may occur during the interview in relation, for instance, to the behaviour of the interviewer in the interview situation, the interaction between the interviewer and the examinee, linguistic usage, the interviewer's way of registering verbal behaviour (cf. Dahlström 1951*a, b*, 1957, Madge 1953). The errors may also be due to the examinee giving incorrect information. This may be connected with the way in which the interview is carried out; it may also occur irrespective of this. Some people have a tendency to dramatize their situation, others to make little of it. Some are anxious

that the interviewer shall have a favourable picture of their state of health, others do not hesitate to give drastic, and perhaps exaggerated descriptions. As stated already, a tendency to hide a delicate situation is normal (see page 42). Regarding the emotionally more "neutral" illnesses it may be assumed that the information is generally more reliable.

It may be pointed out that possible distortions may be due to both conscious attempts to mislead the interviewer and to general lack of clarity as to the information required, for instance due to lack of interest in the survey. Many persons have difficulties in recollecting without making a direct effort, and just do not bother to think, particularly if the conversation does not interest them, or perhaps is even embarrassing. The data then tend to be summary with many gaps. Patient conversation may admittedly supplement the picture piece by piece, but such an indifferent or embarrassed attitude in the patient may lead to thoughtless mistakes not being corrected and important information being omitted.

The willingness of the examinee to co-operate varied from the definitely negative, reserved, uncommunicative, over the totally indifferent to the deeply interested and helpful, who tried to be quite certain about every piece of information. In addition it is possible that the examinee, perhaps on account of unknown psychological factors, might actually have forgotten what happened and was either unable to relate some events, or, possibly in good faith, filled the gaps with more or less vague information.

In some single cases it was noticeable at the interview that the examinee was unreliable. Then it was possible to take precautions through greater carefullness. Usually, however, the interviewer did not notice anything in particular. No very high degree of untruthfulness or deceit is required in the examinee for a few errors to get past.

Different methods have been tried to combat this problem. It is necessary to create good contact with the examinee. The interviewer must be so experienced and trained that he can "handle" people and win their confidence. He must have a feeling for the manner in which an answer is given, so that he can recognize shyness, uncertainty, tendencies to dramatize and so on, which may mean that the answer is unreliable. The examinee's interest in the questions must be aroused. The questions must be framed in such a way that they are understood. Different research workers have given various recommendations as to how the questions shall be put: patiently in the form of conversation,

so that the examinee has time to think in peace (see e.g. Madge 1953) or a fire of cross questions as at a police investigation, so that he does not have time for evasions (e.g. Kinsey 1948).

Various methods are usually employed to increase the reliability of the answers and to measure the degree of reliability. In some surveys the interviews, or a sampling of them, are repeated once or several times after a certain interval, and if the data agree this is considered to confirm the correctness of the information. It has been pointed out, however, that one can also lie consistently (Kinsey 1948, Ackoff 1953). A person who denies a previous attack of syphilis will not be more reliable because he repeats the lie six months later. Sometimes the interview has been planned in such a way that one consistently returns to the same data in different connections (cf. particularly the method worked out by Kinsey 1948). In the questionnaires of life insurance companies "cross questions" of this kind are used. Several interviewers have sometimes been employed who work independently of each other, and whose results are later compared. In this way erroneous answers may be corrected and some idea obtained of the degree of reliability. However certain emotionally charged circumstances could, even so, be consistently concealed. In more comprehensive questioning one can test the information for consistency, and see if the whole tallies. One can try to test the interviews by checking certain answers against information in registers. The reliability of the material may also be increased by making use of other sources of information, and so on.

The decisive factor in the choice of method is what is feasible. In this survey, on account of the sensitivity of the subjects, it has been necessary to advance with great caution. Care must be taken not to tire the patients. Among paupers the survey soon became known and was eagerly discussed. The course of the collection of material was to some extent dependent on the verdict of the first persons interviewed. An important question is whether the examinee had any "interest attitude" at the interviews. This cannot reasonably have been the case with the controls. For paupers the matter is more complicated. In actual fact the answers could neither contribute to the advantage or disadvantage of the persons in question. The amount of assistance had been fixed previously, and was not affected by the interviews. The important point was, however, what expectations were held in this respect. It is difficult to express an opinion on this with any certainty. The interviewers received the impression that the reply attitudes varied

considerably from case to case; some tried to make little of their symptoms, others exaggerated them.

The following methods have been used to increase the reliability of the data.

1. One attempted to reach as good contact as possible with the examinee. Some people were negative, uninterested or obviously sabotaged the survey, and, for instance, amused themselves by weaving fantasies about their past, and now and then making fun of the social case-workers. These were taken over by more experienced personnel, in the last resort I interviewed them myself. The wishes of the examinee regarding the time and place of the interview have always been met. We have appealed to their interest, helpfulness, citizenship etc. Both the paupers and the controls have been generously provided with advice and information in social questions, medical treatment etc. To sum up it may be said that co-operation with the examinees was in most cases good. It seemed as though they tried to collaborate loyally and honestly.

2. It has not been possible to repeat the interviews on several occasions. This would have increased the cost of the survey tremendously, and in addition would hardly have been possible with regard to the examinees. On the other hand it has been possible to judge the internal consistency of the answers at the interview. During the conversation several series of chronological data have often been obtained. The occupational and employment history, family history, migration and housing situation, economic circumstances, social history, physical and mental condition etc. have each been outlined. The data in the various series must tally. Contradictory information has led to complementary questions. If the contradictions have been discovered first after the completion of the interview, contact has been taken with the examinee again, as in the case of incomplete information, for additional data and verification. If it was observed during the interview that some questions were met with evasive answers or an embarrassed attitude, this has been noted, and an attempt made to return to this point in another connection during the interview or on a later occasion.

3. The interviews were supplemented with data from other sources, as related previously. Sometimes these data were known at the time of the interview (e.g. from the documents of the social welfare records).

This does not only supply new facts. To a considerable extent it supplies detailed information on the same circumstances that the examinee deals with. The examinee may have given one somatic anamnesis, while another may be composed from the documentary material. As a method of testing the reliability of information given by the examinee, this material has the advantage of covering a large number of facts. The control in some cases may be very good. The disadvantage is that the control facilities, as already mentioned, vary from case to case, depending on what objective material can be obtained. It thus functions unevenly, refers to different data in different cases; sometimes there is a large amount of data, sometimes only a few facts. This lack of uniformity, as pointed out previously, was not distributed fortuitously. The supplementary data were, in many instances, not obtained independently of the examinee himself. Often it is just the examinee's own information which forms the starting point for the hunt for data from other sources. In this survey the relatives could not be interviewed without the consent of the patient. If a person declares that he has been in good health and has never been admitted to hospital, this cannot be checked. Those who declare that they have been ill and give a list of admissions will, however, be revealed immediately if the information is incorrect. Since the objective material is far more comprehensive for persons who have been in difficulties of some kind than for the others, facilities for checking their information are greater. If a social transgressor declares that all has been well in his marriage, it may well happen that the documents will disclose detailed descriptions of family conflicts, separation episodes and other unsatisfactory circumstances. If a well-behaved person declares that his relations with his wife have always been good, one cannot turn to any documents to get the information confirmed. One is then dependent upon interviews with other people; and it may, with good reason, be feared that just those people who wish to conceal possible family conflicts will not be very anxious for a third person to be consulted.

It should also be pointed out that the supplementary material cannot be regarded as objective throughout. Information on previous illnesses in hospital case-papers often originate from the patient himself, as do data on youth conditions and previous occupation in the documents of the social welfare records or records of trial proceedings. However the information has been given by the patient at another time and in another situation, and can to this extent be regarded as some check on the various statements in the interview. In the case of old documents the information

also lay nearer in time to the situation in question, and may therefore deserve greater confidence than the information in the interviews. Many of the data in the documentary material are, however, quite objective. This concerns above all the hospital case-papers, and the descriptions physicians have given of the illnesses which gave rise to admission to hospital or consultation with a doctor.

4. Every interview has been divided up between at least two interviewers. This means that the second interviewer could check up on questionable data which had been given at the first interview. It has also provided a mutual check on the interviewers. The examinee's behaviour has thus been observed by two persons on different occasions. This is probably of particular importance for the psychological and psychopathic diagnosis. Apart from the observations of the physician and social case-worker, this diagnosis is also based on the results of tests, the examinee's own account, the anamnestic material, information from schools, employers, and welfare officers, and possible conversation with the relatives or acquaintances, descriptions of behaviour in hospital case-papers and medical statements and in documents of various kinds. In nearly all cases, therefore, contributions have come from several different sources.

Some authorities have stressed that different observers shall not influence each other. It is considered, for instance, that the reports of the social case-worker, the psychiatrist, the psychologist and the Rorschach specialist should be kept strictly separated, and another person analyse the whole material. Even discussion of the cases should be avoided (cf. S. and E. Gleuck 1950). In this survey, for reasons already given, it has been impossible to keep separate reports up to the stage of the epicrisis. In these circumstances it was considered, on the contrary, not only permissible but even desirable that those collaborating should communicate with each other on the cases. In order that as correct and many-sided a picture as possible should be obtained of the patient, every case has been discussed thoroughly within the team. It can also be questioned if the result would have been more reliable if the collaborators had worked independently of each other. A discussion and an analysis of the observations immediately after the investigation can make it easier to obtain a unified and comprehensible picture of the case. Particularly if information of a psychological nature is obtained from several different sources, a discussion of the material between persons who have themselves learnt to know the patient may

be more valuable, and also guarantee a more correct understanding of him, than an analysis of separate reports by one person who has never met the patient.

Various attempts have been made to test the reliability of data of this type. For instance extracts from registers have been used (cf. Ackoff 1953). It is, however, hazardous to draw general conclusions on the reliability of a material from such spot checking. In this survey, for instance, the date of birth, which could be checked, was correctly stated in almost all cases. On the other hand some cases which were found in extracts from the penal register had denied at the interview that they had committed any crimes. It is quite natural that the controls concealed previous criminality to a greater extent than the paupers who might surmise that their antecedents were previously well known to the social authorities. The same applies to birth. Some of those who were illegitimate have given incorrect information on this—sometimes, perhaps, in good faith. Even information on public assistance in childhood, ability at school etc. were fairly unreliable (this will be discussed in more detail in a future publication).

These examples referred to circumstances where one could *a priori* suspect fairly large errors in the replies. It is natural that some people did not wish to let it be known that they were illegitimate or that they had done badly at school. They may not have been so well informed on whether the family had received public assistance in childhood. Thus unreliability in data of this type does not give a definite indication of the degree of reliability of other information. There are other questions, however, which are at least equally charged with emotion as these, and on which it is not always possible to obtain objective data. An example of this is the occurrence of venereal or mental disease. It may be assumed, and this is confirmed by spot checking, that people generally conceal conditions of this kind more often than they admit them. Probably, therefore, somewhat too low ratios were obtained.

Information from different sources need not, however, necessarily agree completely to be described as reliable. This applies particularly to psychological observations. These are always studies of behaviour. Behaviour and reactions alter in different situations and different tendencies appear. It is thus just as much a question of complementing the picture as of checking it. In this survey there was good agreement between the character description of the physician and the purely descriptive parts of the Rorschach interpretation in about 42 per cent

of the cases, while the agreement in a further 42 per cent could be denoted as rather good for several essential psychological data. In about 14 per cent of the cases the agreement must be described as defective. It should be pointed out that the Rorschach report on these often elderly and simple people was sometimes rather scanty, which obviously made an interpretation more difficult and sometimes only enabled short, rather general statements to be made. In a few cases the report was so scanty that actually no interpretation could be made at all. Regarding the actual diagnosis the differences were often large. Schizophrenia was diagnosed by the physician in 2.4 per cent and schizoid personality in 1.1 per cent of the cases, while according to the Rorschach test there was certain or probable schizophrenia in 5.2 per cent and schizoid personality in a further 3.4 per cent of the cases. The diagnosis of psycho-infantilism was made in 3.3 per cent of the cases, but occurred in the Rorschach reports in 11.9 per cent. Such contradictions are probably due above all to the way the observations were interpreted, and on a different import being given to the diagnoses. The high frequency of psycho-infantilism according to the Rorschach interpretations is, for instance, probably related to the psychoanalytical theories on neurosis as a regression to an infantile stage of development. Such discrepancies have been observed also in other connections (cf. e.g. Statens offentliga utredningar 1953). This may also be the explanation of the fact that differences between the descriptions of behaviour and Rorschach interpretations occurred somewhat more often than in certain other surveys (cf. Bohm 1951).

The Occurrence of Non-examination

Table 12 shows the extent to which the medical examination was able to be carried out. The interviews were best. In order not to endanger these, it was, in some instances, necessary to abandon the other parts of the examination. As stated previously, this situation was expected. The interview was regarded as the most important element, the other parts as supplementary material. The result was throughout better for the paupers than for the controls; a physical examination was refused by most of the control cases. The material was also more complete on all points for women than for men. An unexpectedly large number accepted the testing. This is an interesting detail from the technical point of view. It is particularly remarkable that so many of the controls who were not interested in the actual problem, agreed to be examined

TABLE 12. *Number of interviews, physical examinations, tests and home visits.*

Sample	No. of cases	whereof in %					
		inter- viewed by doctor	interviewed by social case-worker	physical examina- tion	Ror- schach	point scale	home visit
<i>Paupers</i>							
Men	166	83.7	81.9	77.7	72.3	60.8	67.5
Women	334	93.4	92.2	80.2	85.3	77.2	84.1
<i>Controls</i>							
Men	166	79.5	71.7	24.5	62.0	57.8	66.9
Women	334	88.3	82.3	28.7	76.0	63.5	70.4

in this way. The point scale met with somewhat greater resistance than the Rorschach test, which aroused the curiosity of many persons. In certain cases it was impossible to carry out testing (on account of disturbing intermezzo in the home etc.). It may be pointed out that the number of interviews by social case-workers is not synonymous with the number of social histories. If the social case-workers did not meet the patient the social history was taken by the physician (and in some cases he also carried out the tests).

The importance of the non-examined element has been vigorously discussed particularly in sociological literature. Numerous investigations have shown that non-examination does not usually occur fortuitously (see e.g. Gaudet and Wilson 1940, Stock 1947). Attempts have been made to find a way of correcting errors due to disappearance (see e.g. Hartley 1946, Hansen and Hurwitz 1946, Politz and Simmons 1949, Madge 1953, Dalenius 1953, 1955). These methods however, demand a rather large material if they are to be reliable. They are primarily constructed for opinion surveys and similar projects.

Apart from this the risk of error due to non-examination can only be counteracted in two ways. The information can be obtained from other sources (see Ackoff 1953). This has, however, declared Madge (1953), never been fully satisfactory hitherto. The basic material will then be of different kinds for the cases in different samples. The non-examination may also be diminished by repeated attempts to obtain an interview. Progress is to a great extent dependent upon the mode of

procedure in contacting the examinee. It is, however, an expensive method and in addition it can only be pushed to a certain point. People can definitely refuse or remain inaccessible.

Non-examination may have different causes. Usually it is divided into two main groups, the refusals and the unavailables. The latter group is rather heterogeneous. In various surveys it includes cases which could not be identified or had incomplete or incorrect addresses, people who had moved and disappeared to unknown addresses, who were away, in military service, in prison, in hospital, had been ill, did not attend when summoned, were never to be found at a home visit etc. In some surveys persons who have died before the survey was completed are classified separately as well as "others", comprising persons with language difficulties and unable to give information, also persons whom there was no time to interview before the end of the survey, who lived too far away, were forgotten etc.

It is not possible to say how large a non-examination group may be tolerated without too great a danger to the drawing of conclusions of fairly general validity. This depends upon what selection the non-examination group represents. The number of non-examined varies considerably in different surveys (in interview surveys on various problems by e.g. Ekblad 1948, Dahlström 1951, 1954, Segerstedt and Lundquist 1952, Helweg-Larsson *et al.* 1952, Annell 1953 and Essen-Möller *et al.* 1956, the number of non-examined varied between 1 and 22 per cent). In interview surveys on morbidity similar variations occur (see page 41).

In the present project it was assumed that the non-examined must represent a selection. An attempt was therefore made to bring down the number of non-examined to the minimum. Sick persons were visited again after they had recovered, persons admitted to institutions were visited in the institution or after their discharge, those who were away (on holiday, work, etc.) were examined on their return and so on. The non-examined were therefore reduced to persons who had disappeared to unknown addresses or, despite numerous home visits, telephone calls, letters etc. could not be contacted. The various kinds of non-examined have been given in table 13. Only one pauper refused completely to be examined, while 4 could not be found. Non-examination from such causes therefore was 1 per cent. Of the controls 24 persons refused to be examined, while 13 could not be found, that is a total of about 7 per cent. This is an expression of the somewhat more reserved attitude of the controls to the collection of material. The

TABLE 13. *Number of cases not interviewed by a doctor and incompletely investigated cases.*

Sample	No. of cases	Not interviewed by a doctor										Incompletely investigated cases			
		Refusals		Unavailables		Dead		Only inter- viewed by a so- cial case-worker		Total		Regarding mental condition		Regarding physical condition	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Paupers</i>															
Men . . .	166	—	—	1	0.6	23	13.9	3	1.8	27	16.3	—	—	13	7.8
Women .	334	1	0.3	3	0.9	16	4.8	2	0.6	22	6.6	2	0.6	11	3.3
Total . . .	500	1	0.2	4	0.8	39	7.8	5	1.0	49	9.8	2	0.4	24	4.8
<i>Controls</i>															
Men . . .	166	7	4.2	9	5.4	15	9.0	3	1.8	34	20.4	14	8.4	22	13.3
Women .	334	17	5.1	4	1.2	7	2.1	11	3.3	39	11.7	21	6.3	29	8.7
Total . . .	500	24	4.8	13	2.6	22	4.4	14	2.8	73	14.6	35	7.0	51	10.2

paupers were more patient and resigned at the interview. They were hardened to contact with the organs of society.

In addition there were deaths. Although the medical examination of the paupers was completed by 1946, 39 persons died without being examined. Only 22 of the controls died however, although the examination of these was performed on the average two years later (cf. table 30, page 239).

Some cases were only interviewed by the social case-workers. Even these interviews sometimes gave a rather good idea of the morbidity. If, however, these cases are included in the non-examination group, the ratios would be 10 per cent of the paupers and 15 per cent of the controls.

The importance of the non-examined has been tested in two ways. A more detailed description of this will be given in a future publication.

1. First an analysis was made of certain data which existed for nearly all cases, even the non-examined. This covered, for instance, sex, age, birth, family type, social group, income, migration to, and movement within Stockholm, convictions for drunkenness, vagrancy and criminality. Male controls were unavailable more often than female (if deaths are not included $\chi^2_c = 7.06^{**}$). Percentually about the same number of men as women were refusals. In both samples more men had died than women, which is probably related to the somewhat higher average age and morbidity of the men (cf. pp. 62 and 239).

Otherwise the number of non-examined showed only small and not significant differences regarding the several variables, and therefore no definite statement can be made. It is, however, worth noting that in the control material the refusals were somewhat more frequent among the gainfully employed than the non-gainfully employed, and among the natives of Stockholm than the immigrants. Middle class people (social group II) refused somewhat more often than working class people (social group III). In general it was more difficult to carry out the investigation of persons in higher social strata than in lower. The former were throughout less co-operative, more critical and reserved. Finally, deaths were more numerous among the older persons, and also among the married and unemployed (i.e. the sick!).

The differences given here are not greater than that they may have been fortuitous. Thus no definite statement may be made. The information provided shows, however, that the non-examined can have brought about some bias in the composition of the material. This could

possibly even apply to other factors, for instance the physical or mental condition of the examinees.

2. A comparison was then made of the several variables in persons who accepted the whole survey programme and those who refused certain parts of it, namely the physical examination, testing or home visit. The latter group should show a shift in the same direction as those who refused completely. Generally such comparisons are made between persons interviewed at the first attempt in relation to those interviewed first after repeated attempts. In the collection of this material, however, such a comparison would have been difficult because the methods used to contact the examinees were extremely varied in order to obtain greater effectivity. The comparison referred to 30 variables concerning home conditions in childhood, the family situation in adult years, employment and housing conditions, migration, length of relief period, disturbances of social behaviour, physical and mental condition etc. On the whole the differences proved to be rather insignificant. The shifts varied also for the two samples. Here will be given only some data of importance for the morbidity survey.

A physical examination was refused primarily by controls who considered themselves to be in good physical health (see table 14). In the pauper group persons with and without symptoms of physical illness were examined to an almost equal extent; among the controls on the other hand, far more of the former group were examined. Interviews with a physician were far more evenly distributed. Testing and home visits had been carried out to about the same extent in persons with and without symptoms of physical illness.

Both regarding the physical examination, testing with Rorschach or point scale and the home visit there was almost throughout a shift to better intellectual equipment in those who refused to accept the item in question than in those who agreed to it. The differences were, however, only occasionally significant, and isolated deviations in the general tendencies also occurred. None the less this points to a tendency for refusals to occur in the first place among more intelligent persons.

Abuse of alcohol was also less frequent among those who refused the physical examination or testing. For criminality and vagrancy there were no such constant tendencies. The differences were, however, rather small here also; significantly lower ratios for abuse of alcohol were only demonstrated for the male paupers and controls who refused

TABLE 14. *Interviews by doctor and physical examinations in persons with and without symptoms of physical illness.*

Physical condition	Male paupers			Male controls		
	No. of cases	whereof interviewed by doctor in %	whereof physically examined in %	No. of cases	whereof interviewed by doctor in %	whereof physically examined in %
Without symptoms of illness	15	100.0	86.7	51	88.2	7.8
With symptoms of illness	151	82.1	76.8	101	86.1	44.6
	Female paupers			Female controls		
	No. of cases	whereof interviewed by doctor in %	whereof physically examined in %	No. of cases	whereof interviewed by doctor in %	whereof physically examined in %
Without symptoms of illness	34	100.0	67.6	87	93.1	11.5
With symptoms of illness	298	93.0	82.2	226	94.7	38.1

intelligence testing. The refusal of a home visit was, however, rather more frequent just among those who abused alcohol.

The prevalence of mental disorders showed no clear and constant differences between those examined and those who refused the aforementioned items in the collection of material.

To some extent the supplementary data reduced the significance of non-examination. Unevenness in this data has already been mentioned. It should be mentioned here, however, that there were also refusals and unavailables in this supplementary data. The patient may have refused to consent to certain sources of information being used, no reply may have been received or the contents may not have provided any information (due to the documents not being found, difficulties in identification, hazy recollections etc.).

In table 15 an analysis has been made of the number of cases where enquiries were made and the reply frequencies for some sources of information of importance for mental and physical conditions. Enquiries to hospitals and physicians were naturally made more often for the paupers than for the controls, since the former had been ill far more often. An exception to this was private practitioners, who were consulted more often by the controls than the paupers (who generally

TABLE 15. *Number of replies to inquiries.*

Institutions or persons	Paupers			Controls		
	Cases where inquiries were made		Cases with informative reply in % of all cases where inquiries were made	Cases where inquiries were made		Cases with informative reply in % of all cases where inquiries were made
	No.	% of total no. (n = 500)		No.	% of total no. (n = 500)	
General hospitals, cottage hospitals, sanatoria etc.	419	83.8	82.1	324	64.8	70.1
Mental hospitals, mental department in general hospitals, rehabilitation centres for national pensioners with mental illness	95	19.0	82.1	34	6.8	58.8
Infirmaries, old people's homes . . .	31	6.2	64.5	16	3.2	75.0
Rest homes	108	21.6	22.2	42	8.4	26.2
Out-patient departments for physical illness	299	59.8	64.2	231	46.2	59.3
Out-patient departments for mental illness	74	14.8	71.6	20	4.0	60.0
City medical officers	376	75.2	65.4	107	21.4	61.7
Private practitioners .	127	25.4	59.8	250	50.0	38.4
Schools, teachers . .	473	94.6	56.8	480	96.0	47.9
Employers	228	45.6	85.5	302	60.4	80.8

turned to the city medical officer). On the other hand more enquiries were sent to the employers of the controls than to those of the paupers. Many did not wish such enquiries to be made to the employer. Above all it was more difficult to obtain the names of employers of the paupers than of the controls, since the former had been without work for longer periods than the latter, and prior to that had often had purely temporary employment where it was not considered worth making enquiries.

By reply frequency is meant here the relation between the number of cases for which a reply containing information was received, and the number of cases for which enquiries had been made. The actual number of enquiries and replies was considerably higher, since often

several enquiries were sent and several answers received for the same case in respect of *different* hospital admissions, employers etc. The reply frequencies varied considerably. The non-reply was high for rest homes (primarily because not so much is known there about the patients), but was also high for schools (due to the high average age of the examinees). Hospitals generally replied, but sometimes the cases could not be found in the records. Among the medical sources of information (apart from rest homes) the reply frequency was lowest for private practitioners (payment for replies was relatively small). For most sources of information the frequency of replies was somewhat higher for the paupers than for the controls. This is probably mainly due to the fact that more enquiries were sent out for the paupers than for the controls. An exception to this was the number of enquiries to private practitioners and employers, which was higher among the controls. There was also higher reply frequencies for the controls from these sources.

Since in each separate case there was a whole collection of data originating from various sources and differing in character and extent, it is hardly correct, in judging the completeness of the material, to keep exclusively to medical interviews. It was sometimes possible to get a good idea of the state of health of a person even if the physician did not meet the patient. If a social case-worker carried out the interview and testing, and extracts from case-papers were obtained from hospitals and information from attending physicians, it was sometimes not of such importance if an interview with the physician did not take place. Even if no interview at all was made with the examinee it was yet possible in some cases to obtain sufficient information on the individual. This referred in the first place to those who had died. Of the 61 persons who had died, satisfactory information was obtained on 45. In these cases the relatives were interviewed instead. Sometimes information was obtained from other sources. It was more difficult with the refusals and the unavailables. Then it was generally not possible to turn to persons who were acquainted with the patient. Often information from other sources was scanty also. Only in 2 of the 25 refusals was good supplementary information obtained, and in 6 of the 17 unavailables. Finally it was not always possible to make a certain diagnosis, even when a medical examination had been made and the material was supplemented with information from other sources. This was particularly the case with mental conditions. Thus a period of observation would have been desirable in a few cases.

The result was that a small number of cases must be regarded as incompletely investigated. This applies, in regard to physical condition, to 2 paupers and 35 controls (see table 13), in regard to mental condition to 24 paupers and 51 controls. The non-examined element was thus in both respects somewhat larger for the controls than for the paupers, and except for the physical condition of the paupers, greater for men than for women. The age distribution is given in table 4, family type and marital status in table I.

THE SELECTION OF THE MATERIAL

The selection of the material is of importance if conclusions of a more general nature are to be drawn from the investigation. Various factors of interest in this connection have already been mentioned; the following circumstances deserve particular attention.

1. The pauper sample represents, as already stated, only a part of the relief population. The institution population, under-aged, pensioners, persons receiving relief through unemployment committees, or through social welfare offices for at most 6 months have not been included. Probably morbidity varies considerably between different fractions of the relief population, and general statements on the situation in the whole population can therefore not be based on the results of this survey.

2. The control material was admittedly drawn from the general population, but the selection was stratified in accordance to the paupers. Particularly regarding occupation, however, as already related, there were considerable difficulties in finding corresponding cases in the census registers. Regarding the occupation, therefore, the control cases lie between the relief group and the general population. Thus no definite conclusions can be drawn from the situation in the control material regarding the general population. When comparative data on the general population have been found, deviations could sometimes be demonstrated. Criminality, for instance, was higher in the control cases than in the general population. Regarding much data there was, however, good agreement, e.g. for legitimacy, place of birth, social mobility (this will be discussed in more detail in a future publication) etc. If the morbidity ratios show differences between the samples, as is expected, the differences between the paupers and the general population should be greater rather than smaller. The situation may be expected to differ for different illnesses.

3. The fact that persons on relief during 1943 were not included in the control material is also of importance in this connection. Since the pauper population is to a large extent composed of persons who are ill, the number of sick persons in the remaining part of the population should lie somewhat under the average. The number of sick persons would, for this reason, be expected to be somewhat lower in the control material than in the general population. The difference between the samples should therefore be somewhat larger than between the paupers and the general population. This selective factor should thus, to some extent, act in the opposite direction to that mentioned under 2). The effect of this is difficult to measure. It depends partly on how large a percentage of sick people is contained in the 4 per cent of the population which constitutes the whole of the pauper population in the ages 16-67 (see column 4 table 4), and partly on the morbidity in the general population. The argument may be made clearer by an example. If one assumes that all the paupers are ill and that the morbidity in the general population is 20 per cent (cf. various survey results page 241), there would be 200 sick persons per 1000 of which 40 would be the paupers. Among the remaining 960 persons there would thus be 160 sick persons, that is 16.7 per cent. All relief cases are, however, probably not ill; according to many surveys, also, the morbidity in the general population exceeds 20 per cent, particularly in the older ages. Probably the effect of the selective factors discussed here is considerably less than what appears from the example.

4. The exclusion from the sample of institution and hospital paupers must also have a selective effect. Inmates of public assistance institutions and paupers in hospitals are part of the general population; therefore somewhat lower morbidity ratios should be obtained in the control material than in the general population. The difference between the samples for this reason also, should be somewhat larger than between the relief material and the general population. Also here, however, the effect is difficult to measure. The number of institution and hospital patients who have received relief is admittedly known, but some of them have received domiciliary assistance during another part of the year; nor are all the inmates of homes for old people ill. The greatest effect should be for the illnesses which usually lead to institutional care. It seldom happens now, for instance, that relatives take care of adult idiots or disturbingly insane persons. The same applies to many severely disabled persons. Even if only a part of these receive public assistance,

the corresponding morbidity ratios should lie considerably lower for the control material than for the general population. For the relief material, however, where higher morbidity ratios are expected than in the general population, the increase in morbidity should be considerably less for diseases of this type than if the institution population were also included in the selection. Particularly regarding the low grade mental defectives, the increase should disappear entirely, or even be changed to a lower ratio than in the general population.

5. Even regarding the non-examined the effect may have been selective, since the disappearance was greater in the control material than in the relief material. As mentioned already (page 101), no definite statement on this can be made. It appears, however, as if feeble-minded persons and those who abuse alcohol should be somewhat under-represented among persons who refused to participate in certain items of the survey. If the same tendency were present in those who refused altogether, it would mean that the expected difference between the two samples was somewhat too small regarding the occurrence of feeble-mindedness and abuse of alcohol. On the other hand there was nothing which suggested that those who refused certain items in the survey deviated in other psychiatric morbidity from those who participated in the whole investigation procedure. For those who had died (and the unavailables), some supplementary information was obtained; nothing points to a higher or lower psychiatric morbidity for them than for persons examined. Regarding the physical morbidity, it may be stated that the cases who died must have formed a selection of the relief cases in 1943 who were particularly ill. For most of them it was admittedly possible to obtain a fairly good idea of the history of the illness from hospital case-papers and information from the attending physicians (cf. above page 105); this probably did not compensate entirely for the disappearance, however. Since deaths were more numerous among the relief cases, the difference from both the control material and the general population would in this way have been somewhat too small.

There is nothing to suggest that those who refused to co-operate deviated systematically from the rest of the material as regards their physical condition; testing could, however, only be done on those who refused certain parts of the examination. It may be presumed that there were relatively few sick persons among the unavailables. Healthy persons would, namely, be somewhat more difficult to contact, since they are more often at work during the day, sometimes in another

district, move more often etc. None of the unavailables were on relief at the time of the collection of material. The non-examined element for this reason should tend to cause somewhat too high morbidity ratios. Since most of the unavailables were controls, the difference between the samples in this respect probably tends to be somewhat too small; however no test could be made of this.

In so far as the non-examination was selective, it should thus have caused too small differences between the samples rather than the reverse; since the number of non-examined is rather small, the effect is probably not very large. In the estimation of frequencies in the following chapters it has been ignored in most connections.

6. Probably the selective effect of the aforementioned unevenness and incompleteness of the other source material is of more importance. Since the defects were greatest for the controls, it is possible that somewhat more cases of illness were overlooked in the control material than in the paupers, with risk for differences between the samples being somewhat too large.

Above all it is a defect that hardly $\frac{1}{3}$ of the controls received a physical examination; the refusals were in the first place from persons who declared that they were in good health (see table 12). It is possible that some of them were ill without knowing it, or despite their denials. In particular mild diseases might have been overlooked more often than for the relief cases, with risk for differences in the morbidity ratios in the two samples being somewhat too large from this reason also. It is true that interview data of this type is sometimes stated to be fairly reliable; opinions on this matter probably differ, however (cf. page 43). Teilmann (1954), who used the same method, considered that for serious illness the observed number was in almost complete agreement with the actual number of illnesses. However the different number of physical examinations in the two samples constitutes a serious source of error in respect of mild illnesses.

One way of dealing with this source of error seems to be to exclude the physical examination in the comparison with the controls, and include only the anamnestic data. However it was not possible to split the material in this way, since the physical examination could affect the direction and extent of the interview.

Another possibility is to compare data from other investigations also. Such comparisons would be of interest particularly in diseases which were more frequent among the paupers than in the controls. If morbidity

was about the same in both samples, a difference from the prevalence of illness in the general population would still not permit any conclusions to be drawn. Comparisons with other surveys often meet with considerable difficulties, not least on account of the different selective factors in these.

7. The different distribution of family types may also act as a selective factor. Among the men many were married, among the women only a few. It is possible that the greater maintenance burden for married men resulted in a need for relief even with rather mild illnesses with slight disturbances of their earning power; it is also possible that the contrary was the case, since the wife acted as breadwinner instead. For single persons the existence of dependent children, almost exclusively among women, must also have been of importance in this respect. Likewise the greater maintenance burden probably resulted in a need for relief even in mild illness and slight disability. With regard to mental disorders it is widely known that, for instance, schizophrenia and mental deficiency are more common among unmarried than among married persons; among divorced persons most mental disorders show markedly increased frequencies (Ødegaard 1953, Larsson & Sjögren 1954, and others).

This source of error plays little part in the comparisons between the two samples; despite certain defects in the sampling procedure and the shift in the collection of material, the distribution in family types has been very similar. In comparisons with the general population on the other hand it may be necessary to take into consideration the family type, particularly for women; the samples deviate in this connection very markedly from the situation in the general population (cf. table 5). Morbidity for different family types or marital status is, however, generally not known for the general population. It can therefore only be a question of deciding in which part of the relief population a possible excess morbidity ratio lies. Comparison with the control material will here be possible to some extent. Such comparisons have only been made in illnesses with increased morbidity ratios among the paupers. The distribution in family types for these illnesses has been given in table III.

The selective factors mentioned vary in their effect, and, to some extent, counteract each other. It is difficult to give a general estimate of their combined effect. In every doubtful question, therefore, the extent

of the various sources of error must be considered, so that no risk arises of drawing conclusions based on tendentious shifts in the composition of the material.

ANALYSIS

In the analysis of a material of this type it would, from the methodologic point of view, be most satisfactory if the data from various sources were analysed separately. One would then be able to compare the various results and get a better idea of the difficulties and value of the method. The number of data is however, so large and the various sources of information so numerous, that such a parallel analysis of different series of data has only been possible to a limited extent on account of the cost and time involved. In addition the information that came in from many directions was so heterogeneous and sporadic that separate analyses would be of little interest. In the analysis, therefore, the source of the information has generally been ignored. If data from different sources have not been in agreement, information from outside sources has generally been regarded as more objective than the patient's own information. In doubtful cases the information has been classified as uncertain.

CHAPTER 6

MENTAL ILLNESS

INTRODUCTION

A survey of the prevalence of mental disorders in different population groups meets with considerable difficulties on account of the sometimes atypical symptomatology and unclear etiology. Different evaluators, therefore, run a greater risk than in physical diseases of arriving at deviating results. In this survey the first concern was to decide if mental disorders were more frequent among paupers than in a comparable group of the general population. Such a comparison is conditional upon the respective cases in both samples being judged in exactly the same way. With a reservation for chance irregularities, there is no special reason to believe that this was not the case. (See, however, the methodological difficulties in this connection, page 92.)

It is, however, also of interest to compare the prevalence of mental diseases in the paupers with what is known from other surveys of the situation in the general population. The diagnosis must then have been made in the same way as in this survey. In some diseases the various authors have started from well-defined and characteristic clinical pictures and only included unmistakable cases. Uncertain cases have been marked with a query or classified in a group of unspecified cases. The results obtained may admittedly be described as minimum ratios for these diseases, but in compensation the figures are comparatively reliable. The uniform methodology, therefore, makes it possible to compare some of the results of different authors.

In estimating the total morbidity ratios, however, many uncertain and diagnostically questionable cases must be included. It is at present unavoidable that there are different opinions as to where the boundary shall be drawn between health and sickness in this field.

The number of mental disorders in the two samples is given in table 16. In accordance with the principles discussed in chapter 2, two series of figures have been given. One refers to the mental disorders observed at the medical examination. This gives the prevalence in both samples on the day of the examination. In the other series healthy

persons who have previously suffered from mental disorders of some kind (according to anamnestic data and outside information) are also included. In this way one obtains the number of persons in the two samples who, at some period during their life, have suffered from mental illness. In some cases more than one disease was diagnosed. Such cases have been included under each separate diagnosis in the table.

The reliability of these two series is not the same. It is probable that the frequency figures for the prevalence of illness at the medical examination, which were based on direct observations and other data, were somewhat more reliable than the figure which also includes cases that had recovered, since the diagnosis in the latter instance could not be confirmed by direct observation. In general, however, outside information on previous periods of illness was fairly complete. Probably the diagnosis was sometimes even better verified in such cases than in those which were first diagnosed at the medical examination. For some mental conditions the difference between the two series of morbidity ratios is not very large.

In comparisons between the samples both series of figures have been used. In comparisons with other surveys, which often provide risk figures, the morbidity risk has been calculated in accordance with the methods given in chapter 3. The method used is given each time in the text. Correction for the excess mortality in the census surveys (see page 40) has not been carried out on account of the uncertainty of risk figures estimated on small samples. In comparisons with census surveys, therefore, I have used the risk-figures in these, which have not been corrected for excess mortality. In comparisons with birth register surveys (this applies particularly to Fremming's survey) the morbidity risks in the samples should be regarded as somewhat too low.

THE VARIOUS DISEASES

Psychoses

Schizophrenia

In the diagnosis of schizophrenia I have followed the norms which have been generally accepted in Scandinavian and European psychiatry since the time of Kraepelin and Bleuler. Böök (1953) has stated certain general principles which have been used in the classification of cases in this survey.

TABLE 16. *Number of cases of mental disorders.*

Diagnosis	At medical examination				At medical examination or previously			
	Men		Women		Men		Women	
	Paupers	Controls	Paupers	Controls	Paupers	Controls	Paupers	Controls
<i>Psychosis</i>	20	7	23	6	25	9	38	11
Schizophrenia	9	3	5	—	9	—	6	—
Schizophrenia?	3	—	2	—	3	—	2	—
Manic-depressive psychosis	—	1	3	—	—	1	4	—
Presenile psychosis	1	1	2	3	1	1	2	3
Puerperal psychosis	—	—	—	—	—	—	2	—
Somatogenic psychosis	—	—	—	—	—	1	—	1
Alcoholic psychosis	2	—	—	—	4	—	2	—
Other intoxication psychosis	—	—	—	—	1	—	—	1
Reactive psychosis	—	—	—	—	2	—	2	—
Epilepsy	1	—	3	1	1	—	5	2
General paralysis	2	—	3	—	2	—	3	—
Other syphilitic psychosis	2	1	3	1	2	1	3	2
Undiagnosed psychosis	—	1	2	1	—	2	8	2
<i>Oligophrenia</i>	2	—	3	—	2	—	3	—
<i>"Cerebral disease"</i>	10	2	5	3	11	3	5	3
Cerebral tumor	1	—	1	1	1	—	1	1
Cerebral trauma	5	—	1	—	6	1	1	—
Vascular lesion	1	2	2	2	1	2	2	2

Chronic alcoholism	27	11	8	—	27	11	8	—	8	—
Chronic drug poisoning	1	2	—	—	3	2	—	—	—	—
Chronic carbon monoxide poisoning	—	—	—	—	—	—	—	—	—	1
<i>Uncertain lesional disorders</i>	25	14	30	4	25	15	30	5		
Schizoid personality	3	3	4	—	3	3	4	—	4	—
Post-encephalitic condition?	6	1	17	1	6	1	17	2	17	2
Idiophrenia	14	8	4	2	14	8	4	2	4	2
Cerebral trauma?	1	2	1	—	1	3	1	—	1	—
Other uncertain lesional disorders	2	—	4	1	2	—	4	1	4	1
<i>Mental insufficiency</i>	48	14	125	44	66	26	192	91		
<i>Senility</i>	34	20	52	30	34	20	52	30		
Total no. receiving psychiatric examination	153	144	323	305	153	144	323	305		

According to Böök the diagnosis of schizophrenia demands the presence of the following *main symptoms*:

- “1. An unmistakable change of personality should be demonstrable.
2. Dissolution of associations and/or a bizarre, incongruous, unintelligible mode of thinking.
3. Emotional disturbances consisting of lack of, or decreased, affective modulation and faulty emotional contact in personal relations.
4. Autism consisting in withdrawal or otherwise lack of adequate contact with the environment.
5. Acute, subacute or gradual onset before the age of 50.”

According to the same author, the following signs have been evaluated as *contributory symptoms*:

- “C.1. Hallucinations of a somatic nature, of taste, smell and hearing (definite voices, “Gedankenlautwerden”).
- C.2. A feeling of subjection.
- C.3. Ideas of reference.
- C.4. Typical paranoid delusions.”

Some cases have been classified as schizophrenia (?). In these cases certain symptoms pointed to schizophrenia, while other main criteria of the diagnosis were lacking. The reason may have been that the material was too incomplete to give a clear picture of the patient; that senile changes had blurred the picture, or that the psychotic episode had passed over with far too little anamnestic data for a definite diagnosis to be made. The illness may naturally also have atypical symptomatology. As an example of such cases the following may be briefly described.

No. 203. Male pauper, aged 41. At 17 increasing scoliosis, finally became hump-backed. Cause of this not known. Trained as a furniture carpenter at hospital for cripples. At 28 on relief. From 32 years of age obsessions and paranoid ideas. The patient became more restless and anxious and received treatment on various occasions at psychiatric outpatient departments, first as a case of neurosis and imbecility, later as schizophrenia (?). He was described as strange and bizarre. He believed that people intrigued against him, knocked on doors etc.

At the medical examination his mental age was 13. He was circumstantial, distant, inaccessible, distortedly philosophical in his mode of thinking and had a number of paranoid ideas. In Rorschach he was classified as an aggressive recluse with a tendency towards depressive reactions but without any definite schizophrenic symptoms.

Comment: Here there were a number of symptoms which were quite compatible with a diagnosis of schizophrenia. At the medical examination, however, he was relatively poor in symptoms. The Rorschach test did not confirm the diagnosis of schizophrenia, which was therefore queried.

There were 9 certain cases of schizophrenia among the male and 6 among the female paupers, and 3 cases among the male controls, a total of 18 cases (see table 16). Only in one case had the patient, as far as could be seen, regained his health completely. Twelve of the cases had been under observation in a mental hospital, one at a psychiatric outpatient department and one had received a forensic psychiatric examination. In four cases the diagnosis was first made at the medical examination, all with symptoms of dementia simplex. Two of these were controls, broken-down tramps, who had never taken advantage of outdoor assistance. One of them had stayed in a workhouse. It was only a coincidence that they had not been on relief. It should, however, be remembered that it is just among tramps that one often finds cases of dementia simplex who are poor in symptoms, and who have never received aid either from public assistance or mental hospital services, and who have often been practically unknown except to the police authorities (Inghe 1949, and others). In a case finding survey they might well have continued to be anonymous. For those who have taken advantage of outdoor relief a medical examination has generally come to pass sooner or later.

In three male and two female paupers the diagnosis of schizophrenia (?) has been made. Two of these had been admitted to a mental hospital and the third had received a forensic examination. In both cases where the diagnosis was first made at the medical examination the symptoms again were suggestive of dementia simplex.

If the two samples are compared with each other, the number of certain cases of schizophrenia was not significantly greater either for male or female paupers than for the controls. If the ratios for men and women together are calculated the difference between the samples was more marked ($\chi_c^2 = 6.22^*$). If the cases of schizophrenia (?) are included the differences increased (χ_c^2 for both sexes = 10.5^{**}). It would appear then as if schizophrenia were relatively frequent among paupers.

It may also be noted that schizophrenia was more frequent in male than female paupers ($\chi_c^2 = 6.15^*$). The frequencies of schizophrenia otherwise usually show rather small differences between the sexes (cf. Fremming 1947, Bööf 1953, Larsson & Sjögren 1954 and others). The differences were most marked for single persons. For single men (all without children at the medical examination) the figure was 10.4 per cent, for single women without children 2.6 per cent; $\chi_c^2 = 6.48^*$. Between the married and cohabiting male and female relief cases the differences were, on the other hand, insignificant (5.3 and 3.3 per cent

respectively). This might possibly point to a tendency to illness of greater severity in single male than in single female paupers; while the married and cohabiting, on the other hand, showed smaller differences in this respect. More cases of schizophrenia occurred among men than women in the control sample also; the difference was, however, not significant, and could thus have been fortuitous. It is known that schizophrenia is more common among the unmarried and divorced than among the married (Fremming 1947, Ødegaard 1953, and others). There seems to be a similar tendency among men in the present sample (cf. table III), but not, on the other hand, among women; on account of the small number of cases, however, it is impossible to say anything definite. In every family type schizophrenia was more frequent among the paupers than the controls. No definite statement could be made here either; there was nothing to suggest, however, that the excess schizophrenia ratio among paupers was due to over-representation of single persons in the two samples.

In comparisons of the morbidity in the two samples with data obtained from other surveys, consideration must be paid to age distribution. Here only definite cases of schizophrenia have been included. In the calculations, as in all comparisons with results from large population surveys, formula (9), page 49, has been used. The results vary somewhat in various investigations. Fremming (1947), for instance, on Bornholm, using Strömgren's method of correction, found among men the schizophrenia risk of 0.75 per cent. If the present samples are also corrected according to Strömgren's method, the "Bezugsziffer" of 148 was obtained for the male paupers and 140 for the male controls. Corresponding morbidity risks would then be 6.1 and 2.1 per cent respectively. This would mean a sharp increase for the paupers ($\chi^2_c = 50.2^{***}$), but for the controls there was no definite deviation. For the female paupers, the "Bezugsziffer" would be 304, for the female controls 291, while the corresponding morbidity risks would be 2.0 and 0 per cent. According to Fremming the schizophrenia risk for women was 1.02 per cent. Comparisons with the samples do not show any definite deviations.

Larsson & Sjögren, in a west Swedish population of about 21,800 persons, found that the morbidity risk for schizophrenia was 1.05 per cent for men (the figure not corrected for excess mortality). In order to compare the frequencies in the samples with this Swedish population, they must be corrected in accordance with the methods given by Larsson & Sjögren using the weights for the various age groups

which were estimated by them (see page 186 in their work). In this way there was obtained in the samples the "Bezugsziffer" of 145 for the paupers and 137 for the controls, corresponding to a morbidity risk of 6.2 and 2.2 per cent respectively. For the paupers the risk was increased ($\chi^2_c = 33.0^{***}$); for the controls, on the other hand, there was no certain deviation.

Larsson & Sjögren found a morbidity risk for women of 0.80 per cent. If the same corrective method is applied in the present sample, the "Bezugsziffer" for the paupers would be 296 and for the controls 284, and the morbidity risks 2.0 and 0 per cent respectively. For the paupers there was some increase ($\chi^2_c = 4.03^*$), while for the controls no deviation could be demonstrated.

Essen-Möller *et al.* (1956) found in two south Swedish parishes 17 cases of schizophrenia, of which 10 were still psychotic, while 7 were classified as post-psychotic defects. In addition 4 suspected cases were found. The frequency of schizophrenia at the age of 40 or over was 1.1 per cent of men and 1.8 per cent of women. If these figures are compared with those of the paupers (where schizophrenia (?) is included) the difference was important for men ($\chi^2_c = 57.1^{***}$), but very small for women. The male controls had a somewhat higher figure, but for the female controls it was lower ($\chi^2_c = 4.73^*$).

Thus in all these comparisons the morbidity in schizophrenia lay, on the whole, within the bounds of normal variations for the controls. For male paupers there was a steeply increased morbidity, and for female paupers a relatively small deviation which was just significant only in comparison with the west Swedish population. Even these comparisons point to the increased morbidity among paupers being due, in the first place, to an excess of schizophrenia among men.

It is, however, doubtful if these risk figures can be applied to Stockholm. Most of the morbidity investigations which have been undertaken have admittedly given similar results. In an analysis of 18 different investigations, Strömgren (1950) found, for instance an average expectancy-rate of 0.72 per cent. As mentioned previously, however, a large part of the population of Stockholm consists of immigrants. Ødegaard (1932) observed more cases of schizophrenia in the Norwegian-born population of Minnesota than in Norway, and showed that it was particularly Norwegians with schizophrenic tendencies who emigrated. It cannot be excluded that similar selective factors may have affected immigration to Stockholm. It has, however, also been stated that emigration is less common among persons with psychoses

than in the rest of the population (Sjögren 1948). It is widely known that isolated populations can show high frequencies of schizophrenia.

Böök (1953), using Dahlberg's and Stenberg's method, thus found in a north Swedish population a morbidity risk of 2.47 per cent for men and 2.97 per cent for women. If the same method was applied, with the weight figures given by Böök, to the present sample, almost the same "Bezugsziffer" was obtained as when Larsson's & Sjögren's method was used, namely 145 and 137 respectively for male paupers and controls, and 296 and 283 respectively for female paupers and controls. The morbidity risks were 6.2, 2.2, 2.0 and 0 per cent respectively. If the risk figures given by Böök are used as an indication of the schizophrenia risks in Stockholm also, male paupers still showed an increased risk ($\chi^2_c = 6.84^{**}$), while male controls did not deviate to any great extent. For female paupers the morbidity risks were slightly lower, and for the female controls considerably lower ($\chi^2_c = 7.66^{**}$). Even in comparisons with the high morbidity risks in Böök's survey (which are considerably higher than in other population surveys), the male paupers showed an increased risk for schizophrenia. Probably, however, the extent of schizophrenia in Stockholm is more comparable with the situation on Bornholm or in west Sweden than with the isolated north Swedish population which Böök investigated.

It can thus be regarded as rather probable that there is an excess morbidity of schizophrenia among men receiving domiciliary assistance in Stockholm, while the situation for women is uncertain. It should then be remembered that the many cases of schizophrenia cared for in hospitals or other institutions were not included in the survey. It is clear from many works referred to previously that the institutional cases are usually recruited, in the first place, from the lower social strata (see page 28). It is probable that paupers were proportionately numerous in institutions also; the increased frequency of schizophrenia demonstrated among paupers is probably, therefore, lower than it would have been if institutional cases had also been included in the survey.

Manic-depressive psychosis

In this disease also the diagnosis has been based on the criteria set up by Böök (1953).

"This diagnosis was reserved for acute, periodic and selflimited depressions or manic states or alternations of both occurring before the age of 50. These symptoms were expected to occur in an emotionally normal individual and

not to be of a reactive type. Depressions in neurotic personalities were excluded. Patients with delusions other than affective synthetic hallucinations and dissociations were not accepted under this diagnosis."

The age limit of 50 has, however, not been accepted in the present survey; many authors (Dahlberg & Stenberg 1931, Slater 1938, Dayton 1940, Lundquist 1945, Stenstedt 1952, and others) have shown that many cases are first manifested after the age of 50. The cases of manic-depressive psychosis which were observed in the present samples had, however, all appeared earlier.

In male paupers there were no cases of manic-depressive psychosis, in the female paupers four cases. In the male controls there was one case, in the female controls none. In all five cases the clinical picture was typical with a periodic course. All of them, also, had been under observation in a mental hospital on one or more occasions. Besides these there were one or two uncertain cases, which, however, were classified as reactive psychosis. Two of the certain cases were obviously ill at the medical examination, and two further cases seemed depressed, sensitive and socially isolated. Only one was quite healthy.

The differences between the samples were not significant.

In estimating the morbidity risks in the manic-depressive psychoses on Bornholm Fremming (1947) used Strömngren's method (see Strömngren 1935) and the weights for various ages estimated by Slater (1938). He then found a morbidity risk of 1.02 per cent for men and 2.24 per cent for women. If the same method is applied to the present sample (where the average figures calculated from Slater's weight table are used as weights for the different five year groups), the "Bezugsziffer" obtained for paupers were 102 and 223 respectively, and the morbidity risks 0 and 1.8 per cent. For the controls, the "Bezugsziffer" of 99 and 221 respectively were obtained, and morbidity risks of 1.0 and 0 per cent. It may be pointed out that with such small absolute figures no significant differences can usually be demonstrated, nor was this possible in these comparisons. The same applies for most of the psychosis groups treated in this chapter, and this is therefore not pointed out each time.

Larsson & Sjögren (1954), in a cross-section investigation of a west Swedish population in 1936-1944, found an average morbidity risk of 0.62 and 0.75 per cent respectively for men and women; that is, considerably lower figures than Fremming's. Using Larsson's & Sjögren's method and the weights they have given for the various age groups, the "Bezugsziffer" of 99 was obtained for the male controls, and 240

for the female controls. The corresponding morbidity risks for the paupers were 0 and 1.6 per cent respectively, for the controls 1.0 and 0 per cent respectively.

Other surveys of morbidity in manic-depressive psychosis (see Slater 1931, Strömngren 1938, Bremer 1951, Stenstedt 1952, and others) have come to frequency figures of about the same magnitude. The morbidity risks for Stockholm are, it is true, not known, but the controls do not show any deviation from what is known from other places. Thus there may be no reason to reckon with an excess morbidity risk for manic-depressive psychosis in the pauper population. This appears to be in agreement with current impressions that manic-depressive psychosis is not more common in lower than in higher strata of society (see page 29). It is conceivable, however, that some of these paupers were admitted to mental hospitals, and therefore were not included in the samples.

Presenile psychosis (including involutional psychosis)

Böök (1953) has included in the group of involutional psychosis cases with "typical restless agitation and depression with or without features, rigid compulsive obstinacy, obsessional and delusional symptoms". The illness shall have commenced in the ages 51-69.

This group of psychoses often presents serious problems of differential diagnosis. Involutional psychosis is often difficult to distinguish from late schizophrenia, and the presenile dementias from conditions of senile dementia. The age limits set up by Böök are of practical value. Cases which do not fit in with the age criteria can then, as a precautionary measure, be included in the group of remaining unspecified cases.

There was one case of presenile psychosis among the male paupers and two cases among the female paupers. In the male control group there was one case, and three cases in the female control group. There was thus no difference between the samples.

Larsson & Sjögren (1954) found in a west Swedish population that the morbidity risks for presenile psychosis was 0.44 per cent for men and 0.51 per cent for women. They used as "Bezugsziffer" the number of persons who had reached the age of 55. In consideration of the age limits given above, all persons who had reached the age of 50 were included here instead. The "Bezugsziffer" would then be 106 for male and 231 for female paupers and 105 for male and 226 for female controls. Corresponding morbidity risks would be 0.9, 0.9, 1.0 and 1.3 per cent respectively.

Senile psychosis

Böök denotes as senile psychosis "delusional or depressive psychosis occurring after the age of 70". For estimating morbidity risks in senile psychosis Larsson & Sjögren (1954) use as "Bezugsziffer" persons who have reached the age of 70. At the medical examination only 21 of the controls and none of the paupers had reached the age of 70. No definite senile psychosis occurred in the material. Less severe senile changes of the patients will be dealt with later (see page 157).

Puerperal psychosis

By puerperal psychosis is meant here as by Böök (1953) "short selflimited psychotic episodes of confusional character occurring during pregnancy or puerperium and which could not be referred to the schizophrenic or manic-depressive groups". Böök found three cases of puerperal psychosis in a north Swedish population survey covering 4190 women. In the present survey there were two cases among paupers; both had recovered completely. There were no cases in the control material.

In calculating the morbidity risks for puerperal psychosis Böök used Weinberg's method and manifestation periods of 15-45 years of age. He then obtained the "Bezugsziffer" of 1545 and a morbidity risk of 0.19 per cent. With the same method for the present material, the "Bezugsziffer" of 290 was obtained for the female paupers, and a morbidity risk of 0.7 per cent.

Somatogenic psychosis

Two cases of psychosis in connection with somatic illness had occurred, both in the control material. In both cases there were typical confusional conditions associated with disease of the gall bladder in the one case, and acute cardiac insufficiency in the other.

Bremer (1951) found in his population survey in a north Norwegian town, two cases of psychosis in direct association with pyrexial illness (lacunar angina and acute otitis media). By estimating only persons over the age of 20 he obtained a "Bezugsziffer" of 800 and a morbidity risk of 0.25 per cent. Using the same method in the present material a morbidity risk for the controls of 0.5 per cent was obtained.

Alcoholic psychosis

Alcoholic psychosis only occurred among the paupers. Delirium tremens had occurred in three of the male and two of the female paupers

In addition two of the men still suffered from a paranoid form of alcoholic psychosis at the medical examination, one of them following a previous attack of delirium. The prevalence of chronic alcoholism is recorded later (see page 137).

Other intoxication psychoses

One of the male paupers was once admitted to hospital for acute confusion caused by abuse of opiates. A female control case presented a similar clinical picture in connection with abuse of bromides. Both recovered in a few days. Acute intoxication without direct psychotic symptoms has not been included here. Cases of chronic poisoning will be recorded later.

Reactive psychosis

By reactive psychosis is meant transient psychosis in which there has been marked stress in the environment, grief, marital conflicts, financial worries, overstrain etc. which might have been of significance in the development of the psychosis. Four such cases have been found, all among the paupers. It is, however, probable that among the so-called unspecified psychoses, which also were usually transient, there were a few reactive psychoses, although information was not sufficiently complete to permit a definite diagnosis. It is also possible that such relatively mild psychoses were concealed in some cases.

There was no significant difference between the samples.

A comparison with morbidity risks in various population surveys is probably rather hazardous, since there is hardly any accepted practice in diagnosis. The results have also varied in different surveys. Bööck found only one doubtful case of reactive psychosis in his north Swedish population survey of 8981 persons. Sjögren (1948), using Weinberg's method and a manifestation period of 20–55 years of age, found in a west Swedish population a morbidity risk of 0.1 per cent for psychogenic psychoses. Only the most severe cases were, however, included. Faergeman (1945) using Strömgren's method, found a morbidity risk of 0.29 per cent (0.2 per cent for men and 0.4 per cent for women) in Copenhagen. Fremming (1947) has, however, declared that even these figures must be too low, since Faergeman only included cases which were admitted to the city hospital psychiatric ward. Fremming found a considerably higher morbidity risk on Bornholm when he investigated the whole population. Åmark (1951) has later used Strömgren's method and the "weights" used by Faergeman for the various

age groups in Fremming's material, and arrived at a morbidity risk of 0.96 per cent. With the same method, the "Bezugsziffer" of 407 was obtained in this survey, and a morbidity risk of 1.0 per cent for the paupers, that is about the same. In Fremming's material, however, there were about equally many men and women, while there were twice as many women as men in the present material.

Bremer (1951) in his north Norwegian fishing town observed among persons over the age of 10 constitutional psychosis in 1.27 per cent of the men and 2.08 per cent of the women. These were mainly reactive psychoses in "more or less psychopathic individuals".

Epilepsy

In table 16 a total of 8 cases of epilepsy have been recorded. In three of these, all paupers, a typical dementia had developed. A further two still had epileptic fits at varying intervals, but without mental changes. In three cases, finally, judging from descriptions, there had been typical epileptic fits previously, but now they had discontinued.

In a few other cases the convulsive fits occurred in connection with various illnesses. One woman became paralysed and demented after cerebral embolism, and had also begun to have isolated convulsive fits. Another woman, who had undergone a partial thyroidectomy, had convulsive fits for a while, which were considered to be possibly due to hypo-activity of the remaining parathyroid glands. A third woman was an idiot suffering from spastic triplegia since childhood, and had previously also had convulsive fits. After malariatherapy for general paralysis one man had epileptiform fits for a time. Another man, while unconscious after a severe spinal injury, had a typical fit which never occurred again. These cases have been regarded as purely symptomatic, and have not been included in the calculations of morbidity risks for epilepsy.

Fremming (1947), in his Bornholm material, used a manifestation period of 0-29 years of age for epilepsy. He found a morbidity risk of 0.30 per cent for men and 0.41 per cent for women. With the same method there was obtained for the relief cases in the present material a "Bezugsziffer" of 151 for men and 317 for women. The morbidity risk for men of 0.7 per cent did not deviate significantly from Fremming's figure. The morbidity risk for women, 1.6 per cent, was, on the other hand, higher ($\chi^2_c = 7.91^{**}$).

Using the same method for the controls, the "Bezugsziffer" of 142 was obtained for men, and 301 for women. The corresponding morbidity

risk for men was 0 per cent and for women 0.7 per cent, which does not deviate from Fremming's figures.

Åmark (1951) has used Strömgren's method and "weights" calculated by Alström (1950) on Fremming's material. Here cases of symptomatic epilepsy were included also. The morbidity risks were 0.54 per cent for men and 0.48 per cent for women. With the same procedure for the paupers there were obtained "Bezugsziffer" of 138 for men and 304 for women. If the symptomatic cases are included the corresponding morbidity risks were 1.5 and 2.3 per cent. For men the difference was not significant. For women there was, on the other hand, a clear increase ($\chi^2_c = 17.6^{***}$).

For the control cases there were obtained in the same way "Bezugsziffer" of 131 for men and 291 for women. Corresponding morbidity risks were 0.8 and 1.0 per cent, which did not deviate significantly from Fremming's figures.

A number of other surveys of morbidity risks in epilepsy have been made. Fremming (1947) has analysed a number of such surveys from Germany, Switzerland and Denmark, and found that the risk figures in surveys carried out according to the genealogical random-test method varied between 0.22 per cent and 0.83 per cent. The average figure obtained for morbidity risks was 0.36 per cent. Fremming has also analysed European surveys on the prevalence of epilepsy carried out according to the census method, without correction of the figures. The epilepsy frequencies varied between 0.07 and 0.35 per cent and were on the average 0.14 per cent. The surveys of the prevalence of epilepsy in the U.S.A. varied, according to Fremming, in different surveys between 0.21 and 0.51 per cent, while in an English survey the figure was 0.24 per cent. In Sweden a government investigation (1955) was made, based, amongst other information, on a survey carried out by Almqvist on the prevalence of epilepsy in an industrial town of 13,000 inhabitants. The prevalence of epilepsy was estimated at about 0.50 per cent. Special figures for Stockholm have not been assessed. It may be mentioned by way of comparison that among paupers there were at the medical examination 0.7 per cent of the men (1 case) and 0.9 per cent of the women (3 cases) who had epilepsy. The differences are insignificant.

It is possible that there was a slight increase in the epilepsy frequency in the paupers in the first place among women. The controls showed no increase. There was, however, no significant difference between the samples, even if the frequency figures were higher for the paupers than for the controls.

General paralysis

The five cases of general paralysis which were observed among the paupers had all received malaria therapy but were severely demented. In the control material there were no cases. The difference between the samples was not significant.

The frequency of general paralysis is dependent on the extent of syphilis. This varies from country to country, and has long been relatively low in Sweden. The general paralysis frequency in Stockholm is not known. Fremming (1947), who reported 18 surveys from Central and Northern Europe, found that the morbidity risks in general paralysis varied between 0 and 1.83 per cent. Bremer (1951) found no cases of general paralysis in a north Norwegian town. Sjögren (1948) found in a west Swedish population a morbidity risk of only 0.03 per cent (including other syphilitic psychoses). Fremming found on Bornholm a morbidity risk of 0.20 per cent. In these surveys Weinberg's method was usually used in the calculations and manifestation periods of 30–50 years of age (or 30–65). Using Strömgren's more exact methodology and Dayton's weights for correcting age distribution, Fremming arrived at a morbidity risk of 0.27 per cent on Bornholm.

These surveys were mainly of rural areas or small towns; Fremming assumed that the morbidity risk in Copenhagen must be at least twice as large as on Bornholm. In Munich Klemperer (1953) found a general paralysis risk of 1.76 per cent.

Since the risk figures are so varying it is obviously meaningless to compare the present sample with the population surveys in question. Such comparisons cannot say anything on possible deviations from the general population. For the benefit of possible later comparisons the morbidity risks only will be given, calculated according to Strömgren's method and using Dayton's weights for correction of age distribution (cf. Åmark 1951). For men the "Bezugsziffer" of 111 was obtained, and for women 247. Corresponding morbidity risks were 1.8 and 1.2 per cent.

Other syphilitic psychoses

In this group are included three cases of cerebral syphilis, all among the paupers, and all severely demented. Among the paupers there also occurred one case of cerebrospinal syphilis with dementia and one case of congenital syphilis also with dementia. Among the control cases there was one person with syphilitic meningitis who had received malarial treatment at an early stage, and now showed no psychopathic

symptoms; one newly discovered case of syphilis of the central nervous system, still incompletely investigated, where there were demonstrable mental symptoms; and one case of third stage syphilis with gummata cutani and advanced mental deterioration.

It is questionable if these cases should be classified as psychoses. Most authors, however, include general paralysis in their analyses (see Strömngren 1938, Fremming 1947, and others); some also include syphilitic psychoses in general (see Sjögren 1948, Larsson & Sjögren 1954, and others). For the sake of comparison, therefore, they have been included among psychoses.

Comparative risk estimations cannot be made since separate risk figures for other syphilitic psychosis are not found in the various population surveys. For the benefit of possible later comparisons, however, morbidity risks will be given here, estimated according to Weinberg's method and with manifestation periods of 30–65 years of age (cf. Sjögren 1948). Among paupers the "Bezugsziffer" for men was 93, and for women 186. The morbidity risks were 2.2 and 1.6 per cent. For the control cases the "Bezugsziffer" was 91 for men, and 193 for women, while the morbidity risks were 1.1 and 1.0 per cent.

Unspecified psychoses

Under this heading have been collected a number of psychoses which could not with certainty be included in any of the previous groups. Most of them were transient. Four of the female relief cases in the ages 46–49 had developed confusional states with delusions, refusal of food and so on, and which recovered after one or two years. Three of the patients had in youth suffered from depressions or "nervous break-downs" with sleeplessness, anxiety, withdrawal, shunning of society, disability etc. which continued for a few years, and later passed over. In five cases, finally, there were paranoid symptoms, delusions with a sexual content, confusion etc. which continued for a long period, and in three cases the symptoms were still present at the medical examination. One died before the medical examination was carried out. The clinical diagnoses during observation in hospital had varied on different occasions; at the medical examination there were symptoms suspicious of schizophrenia in at least three cases.

Such unspecified psychoses are recorded in most of the population surveys (see Strömngren 1938, Fremming 1947, Bremer 1951, and others). Larsson & Sjögren (1954), in some tabulations, have portioned out these unspecified but almost certain psychoses among the specified

psychosis groups. This has not been done here, since it appeared that especially types of psychosis with a mild and transient course were over-represented in the group of undiagnosed psychoses, and a proportional distribution of the cases could therefore result in deviations from the true distribution. The morbidity risks for the specified diagnoses may, it is true, in this way have come to be on the small side; in the totals, however, even the unspecified psychoses are included.

Total number of psychoses

The total frequency of active and cured psychoses was 16.3 per cent for male and 11.8 per cent for female paupers (one woman had had both a delirium tremens and general paralysis), and 6.3 per cent of the male and 3.6 per cent of the female controls (see table 16). The difference in morbidity between the samples was thus considerable (for both sexes $\chi^2_s = 19.9^{***}$; d.f. = 2). At the medical examination 13.1 per cent of the male and 7.1 per cent of the female paupers were psychotic, and 4.9 per cent of the male and 2.0 per cent of the female controls.

It may thus be regarded as certain that the psychosis ratio is steeply increased among persons receiving long-term domiciliary relief. The increase seems to be greatest among single persons. Among the men there was an active or cured psychosis in 14 of the single and 11 of the married or cohabiting paupers, corresponding to a psychosis morbidity of 18.2 per cent and 14.5 per cent respectively. Four of the single and five of the married or cohabiting controls had psychoses corresponding to 6.1 and 6.5 per cent respectively (see table III). For single persons and married or cohabiting persons without children the increase was, however, about the same; it was particularly the married or cohabiting persons with children who had low figures. One of the married or cohabiting and 37 of the single female paupers were or had been psychotic, that is 3.3 and 12.6 per cent respectively, while the corresponding figures for the female controls were one of the married or cohabiting and 10 of the single women, that is 2.6 and 3.8 per cent respectively. The differences between single persons in the two samples were important (χ^2_s for both sexes = 16.6***; d.f. = 2), while the increase for married or cohabiting persons could have been fortuitous.

Men showed somewhat higher psychosis morbidity than women. This applied to both samples, but even if consideration was paid to

the different distribution of family types the difference was not greater than that it could have been fortuitous.

It would also be of interest to make comparisons with the situation in the general population. There should be a considerable increase in the morbidity risk for psychosis for paupers, while the controls should not show any increase, in any case no essential difference, unless the selective factors given on page 106 played an unexpectedly large role.

Strömgren (1950), in his analysis of various surveys of psychosis risks in general populations, gives many rather low figures for psychosis morbidity. Lemkau, Tietze and Cooper found, for instance, in Baltimore 0.67 per cent, Kaila in Finland in two surveys 0.65 and 0.79 per cent, Mayer-Gross in Scotland 1.54 per cent (including "affective psychoses" schizophrenia, epilepsy, and senile and arteriosclerotic psychoses) etc.

Strömgren (1938) found on Bornholm that 1.14 per cent of the inhabitants were or had been psychotic. In a smaller and more thorough investigation he found that 2.8 per cent of all persons over 20 were psychotic or ex-psychotic. Fremming (1947) estimated later on Bornholm, after a very thorough investigation, that the total psychosis risk up to 56 years of age was 3.0 per cent for men and 5.3 per cent for women.

Bremer (1951) found in a north Norwegian town that 2.9 per cent of the men and 4.2 per cent of the women over 10, at a stated point of time, had suffered or were still suffering from psychosis in one form or another. Böök (1953) estimated the total psychosis risk in a north Swedish material as 3-4 per cent.

In these analyses, however, due consideration has not been paid to the varying manifestation periods for different psychoses. This, however, has been done by Larsson & Sjögren (1954). In table 17 their method has been applied to the present material. For estimation of the "Bezugsziffer" in different psychoses groups the same weight-functions and risk-ages have been used as Larsson & Sjögren give in table 47 (the risk-age for "other psychoses", which was estimated at 38 has however been put at 40, since the material was divided into 5 year groups). The total morbidity risk corrected for excess mortality was, according to Larsson & Sjögren, 4.3 per cent for men and 4.9 per cent for women; without this correction it was 3.1 and 3.4 per cent respectively. In the present survey correction for excess mortality has not been made (see page 113) and therefore in comparisons the latter

TABLE 17. *Morbidity risks for psychoses, corrected according to Larsson & Sjögren 1954.*

Diagnosis	Weight-function or risk-age	Paupers			Controls		
		Bezugs- ziffer	No. of cases	Morbid- ity risk	Bezugs- ziffer	No. of cases	Morbid- ity risk
<i>Men</i>							
Schizophrenia . .	Larsson & Sjögren	145	12	8.3	137	3	2.2
Manic-depressive psychosis . . .	»	101	—	—	99	1	1.0
Presenile psychosis	> 50	85	1	1.2	89	1	1.1
Other psychosis .	> 40	133	12	9.0	124	2	1.6
Undiagnosed psy- chosis	> 45	122	—	—	117	2	1.7
All psychoses . . .			25	18.5		9	7.6
<i>Women</i>							
Schizophrenia . .	Larsson & Sjögren	296	8	2.7	284	—	—
Manic-depressive psychosis . . .	»	245	4	1.6	240	—	—
Presenile psychosis	> 50	198	2	1.0	197	3	1.5
Other psychosis .	> 40	278	17	6.1	271	6	2.2
Undiagnosed psy- chosis	> 45	260	8	3.1	253	2	0.8
All psychoses . . .			39	14.5		11	4.5

risk figures must be used. The total morbidity risk in the relief material was found to be 18.5 per cent for men and 14.5 per cent for women, in the control material 7.6 and 4.5 per cent respectively.

It has already been shown that among the paupers psychoses were more common in single than in married or cohabiting persons; in the control material the difference between these two groups was not so large. Since single persons were over-represented in the samples, the aforementioned risk figures estimated for the total number of psychoses must be somewhat too high, anyway for the relief material. To eliminate this source of error a standardization of the sample was carried out to the same distribution of unmarried (including previously married) and married persons as in Larsson & Sjögren's material, which would mean an over-correction, as some of the unmarried or previously

married are cohabiting even in the general population. The method is thus very rough; it should, however, be sufficient for a summary estimation. For the male paupers the corrected psychosis frequency was 15.5 per cent which did not deviate very much from the observed frequency of 16.3 per cent. After this correction the total morbidity risk was assessed at somewhat less than 18 per cent instead of the estimated 18.5 per cent, thus still considerably higher than for the general population as estimated by Larsson & Sjögren. Similarly for female paupers a psychosis frequency of 5.9 per cent was obtained, and this, on the other hand, was considerably lower than the observed frequency of 11.8 per cent. The total morbidity risk should analogously be estimated at somewhat more than 7 per cent instead of the assessed 14.5 per cent. The risk thus appears somewhat higher than in the general population for the women also. The risk figures obtained are obviously very uncertain, due especially to the small number of married or cohabiting women in the material.

Corresponding estimations for the control cases did not give any correction worth mentioning of the total psychosis risks already calculated. For men the risk was somewhat higher than those given by Larsson & Sjögren; for women the difference was very small. In consideration of the small size of the samples the somewhat higher psychosis risk for the male controls may possibly be fortuitous. It is also possible that the selective factors played a part (the men, for instance, in the process of selection, came to be drawn from somewhat lower occupations than the female controls). The possibility cannot, however, be excluded that the psychosis risk is actually somewhat higher in Stockholm than on the Bohus islands.

The risks estimated here of contracting a psychosis refer to persons who received domiciliary relief. It was pointed out previously regarding the frequency of schizophrenia, that if the survey had applied to the whole of the relief population, that is also those cared for in institutions, even higher figures would probably have been obtained; this argument applies also to the total number of psychoses.

Oligophrenia

The boundary for oligophrenia has been drawn differently in different population surveys. Often "social incapacity" has been the main diagnostic criterion (cf. Fremming 1947, Åmark 1951, Böök 1953, Larsson & Sjögren 1954, and others). In the extent to which intelligence

testing has been used varying boundary values for the I.Q. or mental age have been given: Fremming I.Q. 70-75, Strömgren (1938) I.Q. 75, Bööck mental age 10, Åmark I.Q. 60 and so on. Larsson & Sjögren estimated the boundary value of the I.Q. at approximately 55. Some have also included a group of slighter intelligence defects (Strömgren, Fremming, Bremer, and others). This applies also to the many tests of school children, conscripts etc. (see Statens offentliga utredningar 1947 and 1949, Ekblad 1948, and others). The results have therefore been rather dissimilar also.

The distribution of intelligence in the two samples in this survey will be given in another publication. It has been possible, however, to demonstrate a slight shift towards a lower average intelligence in the paupers than in the controls. In the morbidity analysis only the most low grade, definitely pathologic cases have been included. The boundary has been set at an I.Q. of 55. As appears from table 16, there were two (1.3 per cent) such cases in the male and three (0.9 per cent) in the female paupers, but no cases in the control material. In comparison it may be mentioned that Larsson & Sjögren found 1.06 per cent among men and 0.76 per cent among women and Essen-Möller *et al.* (with the dividing line at an I.Q. of 60) 0.76 per cent among men and 0.73 per cent among women.

The fact that no oligophrenia was found in the controls may, as pointed out previously, be due to the difficulty these people have in managing without help. They usually end up in an institution. This is probably the most important reason also why the frequency of oligophrenia among persons on domiciliary relief was not markedly increased. Stockholm, with its large excess immigration, certainly has comparatively fewer cases of oligophrenia, since migration is lower for persons with a low intelligence level than for the general population (cf. Larsson & Sjögren 1954).

It may be of interest to see how the high grade oligophrenias in the pauper population manage on domiciliary assistance.

No. 11. Female pauper, aged 31. Mental age 7.8 (according to Terman). Lives with an adoptive sister. Has never been able to manage on her own, but helped somewhat towards her maintenance by working as scullery-maid.

No. 74. Male pauper, aged 45. Mental age 8.3 (according to point scale). Lived with mother until his marriage at the age of 35. Until then managed as unskilled labourer and odd-job man. After marriage on relief the whole time. 3 children. He has been convicted for drunkenness, and received warnings for vagrancy, served prison sentences or been declared insane by the court several

times. Despite many physical illnesses, periodically employed as unskilled labourer etc. Very poor living conditions.

No. 183. Male pauper, aged 62. Not tested. High grade oligophrenia who could not learn to read. In youth agricultural work for a short time, later unemployed. After death of parents cared for by sisters. Good-natured and harmless.

No. 393. Female pauper, aged 28. Not tested. Idiot. Suffers from spastic triplegia. Cannot look after herself at all, does not speak, cannot feed herself. Not however, incontinent of urine and feces. Looked after by mother.

No. 480. Female pauper, aged 59. Not tested. Remained a second year in each class in school. Later employment in a family for board and clothes. Married at 32, 5 children. From 33 years of age on relief. Lived in extreme slum conditions. Could not manage the home. Always bought ready cooked foods, since she could not prepare food properly. Husband at present in a mental hospital.

Three of the cases of oligophrenia have obviously been almost incapable of work and cared for by relatives, while two were "capable of work" and married, but always lived in misery.

"Cerebral Diseases"

Cerebral tumor

In three cases there was dementia following an operation for cerebral tumor; two were mild cases and one was severely disabled, dirty and with hallucinations. No corresponding figures for the general population have been found.

Cerebral trauma

Many of the persons interviewed had received head injuries. Only a few, however, had mental symptoms afterwards.

Estimations of the ratio for such illnesses meet with certain problems. The diagnosis is often difficult to make and the differential diagnosis between cerebral trauma and traumatic neurosis is troublesome. Different research workers also, probably have different ideas on the etiology. In concrete cases it often happens that different physicians come to contradictory results. It has therefore been considered best to illustrate briefly how the diagnosis of cerebral trauma is made in this survey.

No. 20. Male pauper, aged 64. At 51 commotio cerebri. Afterwards totally disabled. Obvious personality changes, emotionally incontinent, maudlin, irritable, passive, unenterprising. Mental deterioration. Traumatic neurosis has been suggested, but in this case is not very probable.

No. 50. Male pauper, aged 54. Fractured skull plus subdural hemorrhage at 47. Later intellectual deterioration, reduced power of memory, confused,

slurred speech, dysphoria and perseveration. According to Rorschach dementia. Completely disabled after the accident.

No. 62. Male pauper, aged 65. *Commotio cerebri* at 54. Afterwards changed, easily irritated, reduced power of concentration and memory, intellectual and emotional deterioration. Disabled the whole time.

No. 175. Male pauper, aged 59. *Commotio cerebri* at 49. Later very changed, rowdy, fractious, quick tempered, dysphoric. Developed alcohol intolerance. Memory reduced, continual dizziness and headache.

No. 233. Female pauper, aged 46. Fractured skull plus *commotio cerebri* at 42. Afterwards nervous, quick tempered, irritable, sensitive and maudlin. She became slow, rigid; memory deteriorated. Obvious difficulties in articulation, with slurred, thick speech. Marked difficulties of association; stereotyped; perseveration. Continually tired and limp. Complete disablement.

No. 487. Male pauper, aged 49. *Commotio cerebri* at 39. Later markedly changed and easily tired. Mental deterioration. Perseveration; irritability and poor memory etc.; advanced dementia. Complete disablement.

In a few cases there were certain mental changes some time after the accident which later improved. At the medical examination the patient seemed on the whole normal. It was thus a transient change.

No. 5. Male pauper, aged 41. At 35 fractured skull plus *commotio cerebri*. In the beginning markedly changed. Quick tempered, irritable, nagging, gloomy, severe outbursts of rage, alcoholic intolerance. On one occasion admitted to a mental hospital for a severe fit of temper in which he destroyed everything within reach. Diagnosed then as cerebral trauma. Gradually improved. At the medical examination no remaining mental symptoms, but on the other hand certain somatic symptoms (impairment of hearing and sense of smell, slight disturbances of balance). Hardly any disability remained.

No. 520. Male control case, aged 68. *Commotio cerebri* at 67. A few months after the accident headache, dizziness, Romberg +. Maudlin, nervous, irritable, memory impaired. Improved gradually, and at the medical examination no obvious symptoms.

Comparison with the situation in the general population is difficult. Some research workers probably demand even more massive symptoms for the case to be regarded as definitely lesional. In the available population surveys there are only isolated cases of cerebral trauma. Fremming (1947) found on Bornholm only two cases in persons over the age of 10, corresponding to a frequency of 0.05 per cent. Bööck (1953) in a north Swedish population found only one case with "post-contusional syndrome", i.e. 0.01 per cent. Dayton (1940) only included cases admitted to mental hospitals, and found in Massachusetts a frequency of 0.01 per cent. The frequencies are thus very low throughout. Among the controls in this survey there was no one presenting definite symptoms of cerebral trauma. Among the paupers on the other

hand, it occurred in 3.3 per cent of the men and 0.3 per cent of the women. The ratio for men was far higher than in the surveys just mentioned. Such comparisons, however, do not permit definite conclusions being drawn. Distribution of family type and age deviated. The paupers were older, and should reasonably have had time to suffer more frequently from head injury. Differences in urbanization, intensity of traffic etc. should also play a part. Above all different criteria may have been used in the diagnosis.

Vascular lesions

In some of the persons examined there had been cerebral hemorrhage, cerebral embolism and cerebral thrombosis (see page 189). In some of these persons lasting mental defects occurred (see table 16). Since apoplexy sometimes had affected persons who were arteriosclerotic or were in other ways markedly changed by senility, it was often difficult to determine what part it had played in the mental deterioration. Only when there was a demonstrable connection in time between the mental changes and the apoplexy, therefore, were cases classified as post-hemorrhagic cerebral disease. There were only three relief and four control cases. The main symptoms were intellectual deterioration, emotional incontinence, and in two cases severe social deterioration. They were apathetic and maudlin also. Neurological symptoms (paralysis, changes in sensibility etc.) were present in five cases, but were lacking in two (also other patients had paralysis etc. following cerebral hemorrhage without mental defects).

Other diseases of the central nervous system

In chapter 7 (page 189) there are recorded some other diseases of the central nervous system observed at the examination. In some of these cases mental changes also occurred, mainly dementia with slight deterioration, intellectual blunting, impaired judgement, euphoria and emotional incontinence. There were two cases of multiple sclerosis, one case each of hereditary cerebellar ataxia (Marie) and cerebral spastic infantile paralysis. There is scattered information on the extent of mental changes in these illnesses (regarding hereditary ataxia see Sjögren 1943, regarding multiple sclerosis cf. e.g. Müller 1949 etc.).

Total number of "cerebral diseases"

The heading "cerebral disease" is naturally to some extent misleading. All mental illnesses are cerebral diseases. Even if the term is used

in a more limited sense, and only refers to severe lesions, it must anyway include, for instance, chronic alcoholism, and, according to some authorities, also what is diagnosed here as ixophrenia and post-encephalitic conditions. General paralysis and other syphilitic psychoses have been classified as psychoses in order to facilitate comparisons with other surveys.

Altogether the "cerebral diseases" recorded here occurred in 6.5 per cent of the male and 1.5 per cent of the female paupers; among the controls in 1.4 and 1.0 per cent respectively. They were thus more common among the paupers, however not significantly so even among men (χ^2 for the men = 3.83). No biased distribution in regard to family types could be demonstrated.

Chronic Intoxications

Chronic alcoholism

Chronic alcoholism has been defined in different ways. Åmark (1951) has described chronic alcoholism in the following way:

"Under chronic alcoholism I have discussed those cases which, after the cessation of the acute intoxication, have manifested pathological somatic or psychic symptoms that may be connected with the abuse of alcohol. Among these symptoms have been e.g. gastritis, absence of patellar or Achilles tendon reflexes, disturbances of sensitivity, tremors, emotional deterioration, impaired judgement, lowering of intellectual level."

This is a common definition, which is to be found in many authors (see e.g. Helveg 1941, Fremming 1947). It is obvious, however, that it is rather difficult to draw definite boundaries for the disease of chronic alcoholism. A successive deterioration occurs in persons who abuse alcohol, and opinions may differ in concrete cases as to which shall be classified as chronic alcoholics in the clinical sense. It is therefore difficult to compare the information of different authors on the frequency of chronic alcoholism in a population. One can never guard oneself completely from the dividing line between alcoholist and non-alcoholist in the clinical sense being drawn in different ways. In this survey therefore, comparison between the frequency of alcoholism in the two samples has been considered the most important. Comparisons with the results of some population surveys have, however, also been made.

Only rather severe and obvious cases have here been classified as chronic alcoholism. Since a somatic examination, as pointed out previously, has not been made in all cases, and then could not always

include a thorough neurologic examination, greatest weight has been laid on the mental changes.

Of the male paupers 17.6 per cent and of the male controls 7.6 per cent were classified as chronic alcoholists. Among the female paupers there were 2.5 per cent and among the female controls on the other hand, none at all. In two of these cases the abuse of alcohol had since diminished, but there were still marked symptoms of chronic alcoholic changes. The difference between the samples was thus considerable (χ^2 for both sexes = 11.6^{**}; d.f. = 2). Chronic alcoholism is thus markedly increased among the paupers. The occurrence of the abuse of alcohol in the two samples will be recorded in a future publication. It may be stated here, however, that among the men 48.2 per cent of the paupers and 33.7 per cent of the controls had been convicted of drunkenness. For women the figures were 6.6 and 0.6 per cent respectively. Thus these ratios were considerably higher among the paupers. In addition there were many persons who abused alcohol but who had never been charged.

Åmark (1951) recorded a number of surveys on the extent of alcoholism in various populations. The results are very varied. Among the men there were, for instance, frequencies of 2.4 per cent (Luxemburger), 2.3 per cent (Brugger), 2 per cent (Boeters), 8.3 per cent (Bleuler), 4.8 per cent (Slater), 3.4 per cent (Fremming) and so on. Among women the figures were lower throughout: 0.7 per cent (Luxemburger), 0 per cent (Bleuler), 0.9 per cent (Slater), 0.1 per cent (Fremming) and so on. Åmark points out that in none of these surveys the authors have taken into consideration the fact that the frequencies obtained must vary with the age distribution of the population. Åmark, therefore, used Strömgren's method on Fremming's material with weights he has calculated himself (see table 7 page 46 in his survey). Then the morbidity risk for men was 3.48 per cent. If the same operation is applied to the present material, the "Bezugsziffer" of 153 is obtained for the paupers and a morbidity risk of 18.8 per cent; for the control cases, a "Bezugsziffer" of 135 and morbidity risk of 8.1 per cent. In both cases there was an increase over Fremming's result (χ^2 for the paupers = 87.8^{***}, for the controls = 7.42^{**}). In particular the high frequency of chronic alcoholism in the control cases may perhaps seem remarkable. However it is not very surprising that, among persons drawn from the lower strata of society in Stockholm, there should be twice as many chronic alcoholists as in the rural population on Bornholm. Bleuler's high frequency quoted above for a mainly rural population outside Basel seems more surprising.

Among the female paupers the frequency of chronic alcoholism was also higher than in other surveys. All comparisons of this type are, however, quite dependent on the composition of the population and the diagnostic practice of the investigator.

Chronic drug addiction

Three of the male paupers had abused narcotics seriously for a long period, all three in association with abuse of alcohol. One of them at the medical examination was still abusing bromides and showed advanced mental changes. Among the male controls there were two cases of narcotic addiction not connected with abuse of alcohol. Both were completely broken down.

Chronic carbon-monoxide poisoning

One of the female control cases, at the age of 61, suffered from carbon-monoxide poisoning and was nervous and tired for a long period. It was regarded as a clinically certain case. At the medical examination, however, there were only relatively insignificant symptoms of increased disposition to fatigue. The case then was regarded as cured.

Uncertain Lesional Disorders

Under this heading have been collected a number of conditions where the classification and possible lesional character might be debatable. It would be going too far here to go into an etiologic discussion, which would be very comprehensive. They are apprehended differently by different authors, however, and a short account of what is implied by the respective diagnoses in this survey is therefore necessary.

Schizoid personality

Essen-Möller (1944) has declared that many of the normal qualities which Bleuler ascribed to the schizoid personality could be classified as Sjöbring's superstability. Marked schizoid symptoms are, however, incompatible with Sjöbring's natural variations and must therefore be classified as pathologic. It would be most plausible to regard the various symptoms as the result of the pathologic schizoid qualities superimposed on certain natural personality variations. Gerle (1955) considered, in accordance with Sjöbring's theories, that personality changes of this type would be lesional, but basically there would also be a hereditary factor. There exists a vulnerability which, under

the effect of various external circumstances, particularly lesions of different types, would lead to more or less pathologic manifestations. In some cases only a slight strain would be required to bring about a psychosis, in others one would find a personality which perhaps does not deviate very much from the "normal". The transition is fluid and there should be no reason to speak, as Kretschmer does, of schizothymic, schizoid and schizophrenic. The varying constitutional alloy would provide the varying character to this "schizophrenic non-psychotic" personality (White 1944).

According to this hypothesis schizoid personality would also be a lesional condition and there would be reason to record such cases together with schizophrenia. The hypothesis is, however, by no means verified; and even if the schizoids do show differing symptomatology among themselves, they also differ in decisive ways from the schizophrenic patients, not least regarding social adjustment.

In the present survey, therefore, it has been considered practical to work with a schizoid group also. The classification has closely followed the diagnostic lines given in the aforementioned works of Essen-Möller, Gerle and White, and only included cases with a rather high grade of behaviour disturbances. The following cases may serve as examples.

No. 494. Male pauper, aged 66. Died before the medical examination could take place. Father unknown. In general little known on his earlier life. At one time he is said to have been a trade union chairman.

Since the age of 35 employed by the same employer. Good-natured, retired, well-liked by his work mates. People thought, however, that he had landed in the wrong place in society. His capacity for work was reduced. He himself thought that people intrigued against him.

At 54 economic difficulties. Lodged at a boarding house and lived mostly on milk and bread. One night, after he had lain sleepless, he felt changed in the morning, a stranger to himself; went as in a dream, perplexed, bewildered and strange, and thought that people made faces at him. He worked, however, as usual. Two days later he decided to commit suicide, cut both his wrists and lay down to die. He had hallucinations, and thought he was a ghost. Was out walking in the city. Gradually he realized that he was not dead. Became desperate and tried to drown himself in a hand basin, pressed on the carotid arteries, lay on the floor, and then slept all night. In the morning he was found by a neighbour who called the police and a doctor. The following day he began to refuse food, and was admitted to a mental hospital. Here he was treated as a schizoid psychopath suffering from mild confusion. He himself stated that three weeks previously he had struck his head while bathing, however without losing consciousness. He thought that he had changed after this. Insanity due to cerebral lesions was therefore suspected.

The patient behaved the whole time in an orderly and calm manner. He

seemed to be extremely schizoid and eccentric, intelligent and with intellectual interests. He talked in a monotonous and unclear voice, obscure and difficult to comprehend with abrupt changes to other subjects of conversation, continual digressions and philosophical comments. His vocabulary was large, generally used correctly. He said with an ironic smile that the use of foreign words was the "hallmark of semi-education". He was discharged from hospital after 10 days as recovered, and continued his work as before.

At the age of 64 the patient discontinued his employment, according to the social register on account of age and illness. He hired a room and received board. Sometimes he ate at the municipal food centres. The whole of his room was filled with books, untidy and neglected. He did not want it cleaned, although he was offered help with this. Matters went from bad to worse. Christmas 1944 he was found clothed in rags lying on a dirty bed in the furthest corner of a room, and surrounded by rags and broken oddments, household implements and remnants of food. The room was propped knee high, round the walls shoulder high, with a motley collection of books. He was pale, thin and weak. The district physician now arranged for him to be sent to hospital, where he died soon after. The post mortem examination showed that he suffered from a number of severe somatic illnesses.

Comment: A schizoid person, who, with time, became more and more removed from reality and secluded. The confusional state was probably a reactive psychosis (included in this group) but a traumatic factor was not considered as completely excluded. At his death the patient had received public assistance for 2 years, but supervision had obviously been very imperfect. When his neighbours finally called a doctor he was already dying.

The diagnosis of schizoid was made in 10 cases. Of these only the case just described had been admitted temporarily to a mental hospital. In all cases mental peculiarities had appeared early, and by and by they had become more bizarre with stereotyped mannerisms in their behaviour. The differential diagnosis from schizophrenia simplex was sometimes difficult. In all cases a social declassing had gradually taken place. They had not, however, like schizophrenias, withdrawn from productive work, but, if they were still physically healthy, were able to manage without help from society. But their seclusion, tendency to lose touch with real life and anonymity had left them very helpless in the face of increased external difficulties. In many of them there was a tendency to neglect their appearances, particularly when they became old and their strength began to fail. Six of the paupers and one of the controls at the time of the medical examination lived in absolute misery. It was said of one, for instance, that he lived together with his dog in "terrible distress" among rags and rubbish in an old, condemned store-room where he had previously had a fruit shop (no. 267).

Among the men there were 2.0 per cent schizoid personality in the

pauper population and 2.1 per cent in the control material, which was lower than Essen-Möller *et al.* found in their population survey in two rural districts (6.0 per cent) and Åmark in an investigation of surgical cases (5–9 per cent). Among the women 1.2 per cent of the paupers were schizoid and none of the controls, while Essen-Möller *et al.* found 1.8 per cent. Comparisons with the results in other surveys have, however, limited interest; the diagnosis of schizoid personality is fluid and different investigators may therefore easily come to varying results.

Post-encephalitic condition (?)

It is widely known that meningo-encephalitis is sometimes followed by mental changes. According to an analysis by Müller *et al.* (unpublished data) the late prognosis in acute infectious encephalitis (Economo) is poor with usually severe, often progressive neurologic and psychiatric symptoms. Meningo-encephalitis in measles has, according to most surveys, also a relatively poor prognosis. For most illnesses, however, information is rather varied, which is probably related, among other things, to the character of the illness and the severity of the case, but also to differences in methodology in different surveys. Some authors have found that sequelae are fairly common in certain illnesses (see e.g. Annell 1953 regarding whooping cough and Nilsby 1954 on mild primary and post-catarrhal meningo-encephalitis in children), while others are doubtful and believe there are considerable sources of error in investigations of this type (see e.g. Nylander 1955). In a recently completed investigation of sequelae in primary non-bacterial meningo-encephalitis Müller *et al.* found that prolonged and permanent clinical sequelae were unusual and with very few exceptions mild, and of no handicap to the patient.

From such investigations it is a long step to the very great significance which Sjöbring would assign to even mild infections in the causation of lesions and thus of mental deviations and insufficiency conditions.

The symptomatology in hypophrenia (or chalarophrenia) has been described in detail by several authors (see e.g. Rydén 1940, Kinberg 1941, Uddenberg 1948, Essen-Möller 1950, Sjöbring 1954, Gerle 1955). A dominant feature is said to be slackness, which is shown partly in reduced muscular tone, and jerky uncontrolled movements, partly in listlessness, reduced stamina and power of concentration, increased fatigability, tension and a tendency to anxiety and irritability under external difficulties. In event of prolonged mental stress or unexpected difficulties so-called hypophrenic crises can arise.

Among older persons increased fatigue and reduced power of concentration, anxiety and uneasiness are most marked; in younger persons slackness and restless motor activity, impulsiveness and reduced output of work. Also disorders of somatic functions occur, sweating, loss or increase of weight, disorders of menstruation and sleep, allergic reactions etc. The symptomatology is very varied and dependent on the individual psychological make up of the various patients.

Gerle (1955), in summing up, stated that the causes "of the development of hypophrenic conditions is due to infectious illnesses of the type influenza, tonsillitis, measles, scarlet fever, whooping-cough etc. Hypophrenic sequelae are also seen after cerebral trauma and in persons with allergic hypersensitivity. It may be reckoned that the illness or injury which is the basis of a hypophrenia has often been very transient or aroused little attention, and thus has been overlooked by the patient himself and not been included in the information in a routine anamnesis. There must also be a certain predisposition, probably of hereditary character."

There are conflicting opinions in Swedish psychiatry on these theories. Here no contribution can be made to this discussion. This made it necessary to include in a special group a number of cases where the course and symptomatology gave some reason to suspect post-encephalitic changes. No certain cases were observed however. For a diagnosis of post-encephalitic condition(?) was demanded firstly that there was a record in the history of a severe infectious illness, and, as far as could be ascertained, during or shortly after this, evidence of mental symptoms. Secondly that at the medical examination there were either symptoms resembling hypophrenia in accordance with the above description, or massive and prolonged symptoms of insufficiency ever since the time of the infection mentioned. Since there is no uniform psychiatric concept in this question it has been considered necessary to describe each case separately.

MALE PAUPERS

No. 38. Aged 66. Prizes at school. Severe rheumatic fever at 25. Previous to this nothing of note in social or mental respects. Following year asocial, later committed to prison several times. Sometimes vagrancy or street selling. At the medical examination shallow, slack, diffusely anxious, notorious for occasional emotional crises.

No. 113. Aged 57. Spanish influenza at 30. Since then in poor health, heart disease (myocarditis), extreme obesity. At times has not been able to work. At the medical examination emotionally hypoplastic, slack, shallow, apathetic, empty, and stereotyped. Perseveration; abuse of alcohol. According to Rorschach dementia and deterioration.

No. 198. Aged 59. Chorea in childhood. Choreic movements until 30 years

of age. Always been nervous, emotionally unstable, shallow, lacking in energy and irritable. Always alone and roving about.

No. 290. Aged 52. Pyrexial illness at 19, possibly malaria or encephalitis. Became bald afterwards weak and tired. Since then always tired, shallow, listless, unenterprising and slack, generally limp and vacillating. Emotional crises sometimes. Expressionless, rigid, mournful face. Even previously classified as encephalitis.

No. 334. Aged 64. Typhoid fever at 17, malaria at 35. Since his youth described as "mentally ill" but never nervy. Shallow, unfeeling, unstable, easily elated or depressed and in addition feebly fatuous; slurring and sometimes confused. Always disorderly behaviour. Previously navvy or seaman; since 43 years of age street seller.

No. 380. Aged 30. Chorea at 7 and 14. Always classified as psychopathic. Out of touch with reality, confused; motor unrest, shallow, slack, reduced power of concentration. Clinging need of contact, marked irritability and fatigability. Laughing stock despite good intelligence.

MALE CONTROLS

No. 981. Aged 58. Severe chorea at 11, rheumatic fever at 18. At the forensic psychiatric examination on account of arson, diagnosed as postchoreic condition. At the medical examination affective poverty, empty, dull, torpid, slack, seclusive and deteriorated. According to Rorschach organic changes.

FEMALE PAUPERS

No. 53. Aged 39. Normal intelligence. Frail as a child, a number of diseases of childhood, remained a second year in one class. At 14-15 icterus several times, at 18 icterus again. Rheumatic fever, since then valvular disease. Later tubercular salpingitis, cervical lymphadenitis and pleurisy. Anemic for long periods. In addition operated for gall stones. Splenomegaly. Gainful employment until 22 years of age, since then has not had enough strength. Maintained by parents and later relief. Always tired, listless, anxious, maudlin and tense, passive and empty. Strongly psychasthenic but also hysteroid and demanding. According to Rorschach lesion.

No. 68. Aged 64. At 34 icterus. She then became "nervy". Treated at a psychiatric department (case-paper not found). Since then nervous, sensitive, has had pain in the heart. Widowed at 42. Charring, but could not maintain herself on account of her nervousness. Symptoms from joints, heart, back etc. Aged rapidly. At 53 attended psychiatric outpatient department for arteriosclerosis and senium praecox. Sleepless, anxious. At the medical examination arteriosclerosis and dementia. It is impossible to say whether lesions were present previously, but this may be suspected. It is widely known that mental changes may persist for a rather long time after an attack of acute hepatitis (Lagergren 1952, Hult 1953, and others).

No. 84. Aged 47. Spanish influenza at 20. Since then never been really well. Early without employment. Easily fatigued, overstrained, sleepless, often in rest homes, nervous, anxious, depressed and worried. At the medical examination deteriorated, with increased irritability and tendency to collapse. At the

same time uncommunicative and self-absorbed. According to Rorschach emotional dementia. Schizophrenia suggested (but could not be confirmed clinically).

No. 88. Aged 60. At 33 Spanish influenza. Afterwards nervous illness for a time, stayed in parental home. Later grew weaker and more nervous. At 44 she must have relief and classified later as "mentally weak". She had no energy for anything, never completed anything, wept perpetually. Things went badly for her and she could not continue her work as seamstress. At the medical examination physically healthy. Unstable in temperament, anxious, insecure, always on the verge of tears. Very careful and pedantic, but passive and resigned. Normal intelligence. According to Rorschach fairly normal. With this long massive history and her almost complete passivity after influenza the possibility of a lesion cannot be excluded.

No. 100. Aged 57. Chorea at 7-8 years of age, since then a tic in one hand. Until quite recently mostly parasitic on her father, also profligate life. Described as peculiar and unwilling to work. Behaviour affected, hysteroid and extremely impaired judgement, "crazily silly". Considered deteriorated. Not mentally deficient but possible dementia.

No. 105. Aged 43. Chorea at 10. Very nervous for a while. At 16 Spanish influenza. Some weeks later she collapsed and was confused for a week. Had to discontinue school before school-leaving age. At 21 stomach and intestinal catarrh, had to discontinue gainful employment. Stomach trouble developed into membranous colitis. Fainted sometimes, once or twice embolism, after the last time paralysis of the right foot. At 29 single, employed in pearl embroidery and later knitting children's clothes at home. Must have relief. At the medical examination extremely sensitive and touchy, sick, feels plagued by people, more and more secluded, completely passive. No definite symptoms of lesion. It cannot, however, be excluded that the pyrexial illnesses were of significance in her prolonged insufficiency.

No. 125. Aged 49. At 14 typhoid fever. Lay on a couch for many months and walked with crutches for more than a year. Lost the power of hearing. Difficulty in understanding afterwards. Always nervous. Widowed at 35, then completely broken down, must go to a convalescent home. Since then mentally ill, discontented, bitter, anxious, plagued by fits of nervous spasm. No serious somatic illness. Buries herself in her troubles, passive and lacking in initiative.

No. 177. Aged 53. Above the average in school. At 25 rheumatic fever with valvular disease and in time chronic joint changes. Unhappy, sensitive, maudlin and arrogant, with a one track mind. Work became worse and increasing laziness and carelessness. At the medical examination uninhibited and emotionally unstable, slackly unenterprising, mental age only 14. According to Rorschach lesion and dementia; residual state of schizophrenia suspected. Clinically no symptoms of this; mild post-encephalitic condition more probable.

No. 296. Aged 48. Scarletina at 8-9 years of age, afterwards otitis, impaired hearing. Poor at school, remained in the same class twice, although of average intelligence. Early passivity, without gainful employment. Shy and inhibited. Vegetative neurosis. Even classified as insane. According to Rorschach demented, deteriorated, empty.

No. 379. Aged 66. At 14-15 typhoid fever a whole winter. Loss of hair, lost

her memory afterwards, impaired hearing. Gradually more nervous. At 50 chronic polyarthritis. Went to psychiatric outpatient department and treated for neurosis; depressed, compulsive crying. Suspected of exaggeration. At the medical outpatient department classified as psychopathic, postencephalitic condition suspected. Anxious, confused, nervous. At 55 on relief. At the medical examination nervous, anxious and at the same time stereotyped, deteriorated, querulent, suspicious, circumstantial and maudlin.

No. 413. Aged 68. Managed well in school. At 17 typhoid fever, followed by pleurisy. Was quite changed, nervous, since then always weak nerves, never could tolerate screaming and noise. At 45 admitted to a rehabilitation centre for national pensioners for her nerves which had been troublesome ever since the infection. Widowed at 58. On relief. Not enough energy to work. At the medical examination submissive, well behaved, friendly but mental deterioration. Mental age 11. According to Rorschach demented, asthenic.

No. 414. Aged 54. Typhoid fever in childhood, since then always weak. Pulmonary tuberculosis during school life. After her divorce at 35 on relief. Since then a number of somatic illnesses. At the medical examination only hypertension. Anxious, nervous, uneasy, egocentric and hypochondriacal with a paranoid defence attitude, aggressive and contentious. Psychasthenic. According to Rorschach anxious and insecure. The result most typical of cerebral injury, encephalitis suspected. The symptoms were otherwise not typical but it is probably safest to include the case in this group.

No. 427. Aged 33. In childhood Spanish influenza. Since then nervous. Public assistance already at 20. At 24 tuberculosis, considered to have weak nerves. At 28 divorced, lived as in a torpor. At the medical examination physically healthy. Anxious, restless, sensitive and touchy, pernickety, easily offended and suspicious. Asthenic, according to Rorschach also hysteroid. History suspicious of lesion.

No. 429. Aged 35. Childhood home a slum. Chorea at 12. Had difficulty in talking. Involuntary movements of the whole of the left side. Dragged her left leg after her. Afterwards poor at school. Considered of low intelligence. At 15 gave birth to an illegitimate child; lived in an infirmary, later employed as domestic servant but had a nervous breakdown, treated for her nerves twice. Then domestic service again and charring. Sometimes on relief. Kind and well behaved. Mental age over 17 (previously described as mental defective by several observers, including doctors). According to Rorschach possible lesion.

No. 433. Aged 60. Intelligent at school, passed over one class. Typhoid fever at 18, afterwards tired and weak for a long period. At 44 admitted to hospital and rest home for neurasthenia, later she had difficulty in managing. Sometimes on relief. At the menopause a deterioration, went to a psychiatric outpatient department, once admitted to a mental hospital. Was maudlin, infirm and hypochondriacal. Later no work, lived in slummy and miserable conditions with a son, mostly curled up in a bed piled with rags. Chronic stomach trouble and bronchitis, extremely psychasthenic, weak, passive, sometimes affective instability, tearful and maudlin but sometimes querulent. Mental age 11. Extreme mental deterioration.

No. 449. Aged 54. Chorea at 12, away from school one term. Rheumatic

fever at 20. Later always nervous, anxious, restless and continually tired. Always inert, lacking in interest and passive.

No. 498. Aged 66. Weak as a child, easily fatigued. Somewhat under the average at school. At 40 Spanish influenza, later headache and sleeplessness, extremely tired, without work for two years. Since this is said to have had a poor memory. At 53 cerebral thrombosis, unconscious, later paralysis and aphasia which disappeared. After the age of 57 no work, disablement pension. At the medical examination pedantic, slack and restless with obvious mental deterioration, lack of concentration. Mental age now only 9. No definite post-lesional symptoms, but two severe periods of illness in the history. Early passivity.

FEMALE CONTROLS

No. 606. Aged 54. Good at school. At 25 Spanish influenza and then weak for 7 years, depressed, irritable and nervous. Recovered gradually and since then never nervous again. At the medical examination mentally normal, intelligent and well balanced. Can possibly have been a question of a transient post-infectious condition.

No. 875. Aged 57. In school normal intelligence. At 28 Spanish influenza, ill at least one year, could hardly walk by herself. Was so weak that she must support herself against a wall. Loss of hair. Later was changed, restless, melancholic and unhappy, sometimes touchy, broody, insecure and anxious. Previously she did not know what bad nerves were. At the medical examination tired, expressionless, one track mind and somewhat hypochondriacal, nervous, uneasy. Empty and low intelligence (mental age = 12). No certain sign of lesion, but a mental deterioration may have followed the Spanish influenza since her nervous symptoms were said to have definitely commenced after this.

In all these cases it has been a question of persons with severe mental illness. In no case can the diagnosis post-encephalitic condition be considered certain, but in most cases the symptoms have been fairly suspicious and in all cases a connection seems plausible.

These suspected lesional cases were far more numerous among paupers than in the controls (χ^2_s at the medical examination = 14.1***; d.f. = 2). This is quite natural. The paupers have in general been physically ill far more often than the controls, and should therefore also have run a greater risk of developing lesional cerebral changes.

Ixoid personality

Originally lanced by Strömgren (1936) the term ixophrenia has with time come to play a more and more dominant role in Sjöbring's theory of lesions. For its development, according to Sjöbring, both lesions (especially traumatic) and hereditary factors play a part. The symptomatology has even been described by Kinberg (1941), Gerle (1944), Dahlgren (1947), and others.

In a recent work Gerle (1955) described ixophrenia in the following way. The patient is in his behaviour "dull and circumstantial, fixed in certain ideas and affects with a tendency to perseveration and an obstinate and nagging presentation of his point of view. He may be clingingly affectionate in his attitude to other persons, but also, especially when he meets with opposition or disapproval, intensive and charged in his affective reactions, which now and then lead to explosive emotional outbursts. In his religion he easily becomes discursively maudlin, in his sexuality exaggeratedly intensive and in his social attitudes meddlesomely active, so that hyper-sociality is usually described as a characteristic trait. In the ixoid personality paranoidal tendencies are easily established, which often have their basis in what appears to others as an insignificant set-back he has suffered, but which for him becomes the cause of prolonged and persevering actions to obtain justice. In this process the injustice suffered often disappears in a haze of oblivion, and there remains a high-flown insistence on justice for its own sake." Not infrequently also, autochthonous discordancy of dysphoric type occurs which may lead to periodic abuse of alcohol or narcotics. In such discordant periods attempts at suicide are sometimes made. Ixophrenic confusional states also occur.

The lesional character of such conditions is, however, a matter of contention; meanwhile it can only be regarded as a still unverified hypothesis. The condition has been considered to be related to the epileptic dementias, and Dahlgren (1947) considered he had statistical proof of a connection between clear ixophrenic tendencies and the occurrence of epilepsy in the sibs of the ixophrenic patient. This, however, has been disputed very determinedly by Alström (1950).

In the present survey no contribution can be made to this discussion. In any case it is a matter of a rather characteristic symptom complex which is not infrequently associated with disturbances of social behaviour. Ixophrenia, like other mental deviations, should be more common among paupers than in the general population, and in certain instances also, be of significance for pauperization.

The following is an example of how the diagnosis was applied.

No. 493. Male pauper, aged 67. From a good home. Became a waggon painter. Roamed around. Married, had two children, later widowed and then lived mostly in workmen's hostels. The children did not like to have contact with him since he was so ill-natured and spiteful. Known as an alcoholized psychopath. Considered himself badly treated, querulent letters on his unsatisfactory conditions, threatened to commit suicide. In later years hospitalized for spondylitis deformans. In hospital regarded as a querulent tramp. Appears as an ill-tempered, hysteroid old man with paranoid spines in all directions, remarkably troublesome, importunate, quarrelsome, nagging, aggressive and emotionally unstable. Chronic alcoholism but also ixophrenia.

In all these cases it is a question of similarly highly deviating persons. The diagnosis may naturally be discussed in some cases, but it can hardly be doubted that it is a question of a psychopathic condition.

Also ixophrenia, as the condition is understood in this survey, was somewhat more frequent in the relief material (men 9.2 per cent, women 1.2 per cent) than in the control material (men 5.6 per cent, women 0.7 per cent), however not significantly. In both samples ixophrenia seemed to be more common in men than women, which deviates from the figures demonstrated by Essen-Möller *et al.* in two rural communes in Skåne (2.9 per cent among adult men and 4.0 per cent among adult women). Regarding the paupers, however, the excess of ixophrenia was significant only for single men ($\chi^2_c = 15.4^{***}$); for married or cohabiting persons the difference was less. Regarding the controls, after subdivision into different family types, it was found that the difference between the sexes could have been fortuitous (cf. table III). The possibility cannot, however, be excluded that even here there was a bias. I may have had greater difficulty in recognizing ixophrenic traits in women than in men. It is also possible that chronic abuse of alcohol, in particular, which was far more common among men, further accentuated the possible ixoid traits in some persons. The large difference between men and women therefore does not permit any certain conclusions being drawn.

Cerebral trauma (?)

Beyond the reasonably certain traumatic changes which have been recorded already, there were also some more questionable cases. These were persons who were, or had been mentally disordered, but where the connection with preceding head injury must be denoted as dubious. They have therefore been included in the group of uncertain lesions.

No. 315. Male pauper, aged 45. Repeated severe head injuries with commotio cerebri, the first time at the age of 3 months. Developed into a peculiar person, a one track mind, nagging, and clinging. Perseveration, querulence and emotional instability. Ixophrenia (recorded as such already). According to Rorschach it is a question of a lesional change. Impossible either to verify definitely or exclude cerebral trauma.

No. 336. Female pauper, aged 66. Fractured skull plus commotio cerebri at 52. In the beginning speech and balance disturbances. Later changed, reduced power of memory, labile. Not medically examined as she died. Uncertain case.

No. 802. Male control case, aged 55. Commotio cerebri twice at the age of 48. Afterwards disturbance of balance, dizziness, headache, sometimes diplopia.

Mentally he was clearly changed, more irritable, nervous and touchy. Uncertain case.

No. 803. Male control case, aged 59. *Commotio cerebri* at 56. 5 weeks after the accident subdural hematoma which was operated upon. For a time headache and other neurological symptoms. At the same time nervous, irritable. Now free from symptoms. Uncertain case.

No. 855. Male control case, aged 38. *Commotio cerebri* at 25. Afterwards headache. Became maudlin, quick tempered, labile and anxious. Alcohol intolerance. According to Rorschach emotional deterioration. Uncertain case.

It may, it is true, be considered clear that the head injuries were followed by mental symptoms, but it cannot be excluded that it sometimes was a matter of neurotic reactions or that other factors played a part.

There were no significant differences between the samples.

Other uncertain lesional disorders

In a few further cases there were suspected lesional changes but clarity was not reached on the diagnosis. These cases have here been included in a remainder group.

No. 2. Male pauper, aged 52. At 47 suffered from atrophy of the optic nerve and became totally blind. At the same time there developed a marked dementia with mental deterioration, reduced feeling for hygiene, lax sentiments and behaviour showing impaired judgement, certain paranoid ideas. According to the forensic psychiatric examination (on account of forgery) possibly presenile.

No. 355. Male pauper, aged 37. At two years old "fit of apoplexi". Since this always jerky, vacillating, with abrupt outbursts, slack and drivelling. Sometimes also attacks of anxiety. Abuse of alcohol.

No. 48. Female pauper, aged 54. Dull at school. As a widow was not capable of work, received help from her parent's home and public assistance. Said to have been very ill with Spanish influenza. Later goitre nodosa with slight hypothyroidism. Basal metabolic rate - 10 per cent. Otherwise physically healthy. At the medical examination mental age = 10. Nervous, easily irritable, slow, pedantic and fickle. Marked deterioration and inertia. Poor hygiene, smells. People have to accompany her. Incapable of managing the simplest tasks, apathetic and careless to an extreme. Her practical ability is far below the level of her very low intelligence. According to Rorschach empty, labile, suggestible and infantile. The patient has previously been employed, but it would now be grotesque to imagine her at work. In all probability a lesion, but uncertain of what type.

No. 51. Female pauper, aged 49. Average at school. During her marriage her husband developed tuberculosis. She then became nervous, at times must be admitted to a rest home or hospital. Attended a doctor for her nerves when her children were still small. At one time a transient goitre. At the medical examination nervous, anxious, hypochondriacal, enfeebled, with many diffuse somatic symptoms. Stiff and dull. Tired in the mornings, extremely pedantic.

Slow, confused, gave vague information, unconcentrated, full of exclamations and droning. Mental age = 10. Rorschach strongly deviating: patient is markedly asthenic and gives the impression of being demented with reduced power of concentration, uncontrolled, confabulatory, emotionally deteriorated. Schizophrenia suspected. Nothing supports a diagnosis of schizophrenia however. On account of the marked mental deterioration and the massive, prolonged insufficiency, a lesion cannot, however, be excluded.

No. 273. Female pauper, aged 67. Said to have had "meningitis" at 25 and admitted to hospital. There, however, she was diagnosed as "hysteria". Headache for several years after, but later well. According to her sister peculiar and ill-natured after "meningitis". She used to defecate on a newspaper and then throw it in the fire. Asthma at 48. After a few years must give up her employment, sometimes confined to bed. At the medical examination intellectually impoverished, psychasthenic, mildly asthmatic and hypertensive. Remarkable passivity. No hysteroid traits, but no definite lesional symptoms either. Uncertain case.

No. 454. Female pauper, aged 66. At one time prostitute. A total of 9 children who had been taken in hand by the authorities. At 21 admitted to an infirmary for weak nerves and paralysis of the left side. Since then weakness of the left side. At the examination peculiar, confused, unclear information, difficult to get into contact with. Rorschach favours schizophrenia but this cannot be confirmed. Unclear case.

No. 535. Female pauper, aged 62. Left arm paralysed since birth. Said to have been squeezed during partus. At the age of 4-5 fracture and luxation of the left elbow joint, then malposition and wasting of the whole arm. At 20 typhoid fever, lay in hospital 12 months, developed a bed sore and fistula. Operated for inflammation of the ear. Impaired hearing since. After marriage periodic work as seamstress. When older varicose veins, hypertension, asthma, eczema. Always infantile, awkward, easily tired, pedantic careful and anxious. Everyone has been kind to her. At the medical examination strangely detached (deafness?), difficult to get into contact with, preoccupied, introverted, possibly slightly paranoid. Reduced power of memory. Mental age = 11 (but certainly too low on account of hearing difficulties). According to Rorschach peculiar with bizarre fantasies, self-absorbed and neurasthenic symptoms. Schizophrenia of paranoid type suggested, possibly schizoid. The case is, however, unclear and the diagnosis must therefore be left open. In the history there are several other circumstances which could have played a part (partus trauma, typhoid fever).

Total number of uncertain lesional disorders

The most common among these uncertain lesions were obviously the queried post-encephalitic conditions and in the men ixophrenia. Altogether at the medical examination these uncertain, and from the point of view of classification, difficult cases, occurred in no less than 16.3 per cent of the male and 9.3 per cent of the female paupers and in 9.7 per cent of the male and 1.3 per cent of the female controls. They were

thus more frequent in the paupers than in the controls ($\chi^2_s = 19.5^{***}$; d.f. = 2). They were also more frequent among men than women. This difference was particularly marked in ixophrenia. It has been pointed out already that there may have been a bias here. If ixophrenia is not included there is obtained instead a frequency figure of 7.8 per cent for the male and 8.0 per cent for the female paupers and 4.2 per cent for the male and 0.6 per cent for the female controls.

In comparisons between the sexes consideration must be paid to the different distribution of family types (cf. table III). Among the paupers the difference between men and women was insignificant both for single and for married or cohabiting persons. In the controls there was no difference between the sexes for married or cohabiting persons. For single persons, on the other hand, uncertain lesions other than ixophrenia were more frequent in men than in women (there were 5 of these cases in 66 men against only 2 cases in 265 women; $\chi^2_c = 8.82^{**}$). The reason was above all the larger number of cases of schizoid and cerebral trauma (?) in men than in women. However the possibility that men and women were judged differently cannot be completely excluded. It is also of interest that the higher number of uncertain lesions (apart from ixophrenia) among female paupers is confined to single persons. In single women 26 of 293 paupers had changes of this type, but only 2 of 265 controls ($\chi^2_c = 17.6^{***}$). Among single men the figures were 9 of 77 paupers and 5 of 66 controls.

Comparisons between these figures and what is otherwise known of the general population cannot be made. There is no generally accepted basis of classification, and even if another investigator followed the same classification it is not certain that he would have reached the same result, since the unofficial scales which were followed in the estimations may have deviated from each other. The aim here has only been to compare the extent of the respective conditions in two samples which were investigated and judged in essentially the same way.

In the estimations of the psychic morbidity so-called deviating personalities, or extreme constitutional alloys in Sjöbring's terminology, which may lie within the range of normal variations, have not been included. Only pathologic cases with lesions, or at least suspected lesions, or marked mental insufficiency (see below) have been included. From the above account also the pathologic character of these cases is probably made clear, even if the diagnosis in many cases is uncertain, and another author might perhaps have included some in the group of mental insufficiency instead.

A comparison with the information on the frequency of psychopathy which is given in some surveys would also be misleading. Possibly some of the cases which were classified as uncertain lesions would have been called psychopathic by other interviewers. It is also possible, however, that some of the conditions which below have been collected under the heading "mental insufficiency" would have been considered as psychopathy. This might also have been the case with some of the deviating personalities which were not included here, and which, according to Sjöbring's theories, would have fallen within the range of normal variations. The frequency of psychopathy which various research workers have arrived at also varies greatly. Larsson & Sjögren (1954) thus found in a west Swedish population that the morbidity risk in psychopathy, in which only severe cases were included, was 0.34 per cent in men and 0.19 per cent in women. Fremming (1947) found on Bornholm psychopathy in 3.1 per cent of men and 2.8 per cent of women. Bremer (1951) found in a north Norwegian town psychopathy in 9.3 per cent of men and 9.4 per cent of women. Ekblad (1948), who examined conscript seamen at the age of twenty, found that 15 per cent showed psychopathic traits (compare also the literature references in Fremming 1947, Bremer 1951, and others).

Disturbances in Mental Development

The symptomatology in psychoinfantilism is a subject of controversy (see the literature survey in Lindberg 1950). In this survey Lindberg's description has been accepted (see page 19 in his work). Regarding the etiology, psychoinfantilism in his opinion is not a disturbance of development in the real meaning, but rather a social attitude which, in certain conditions, arises in persons with a somewhat deviating individual psychological make up. Such an infantile attitude could be observed in some of the examinees. The boundary between psychoinfantilism and non-psychoinfantilism in this sense is, however, a problem of assessment, and thus to some extent arbitrary. More or less obvious traits of psychoinfantilism were observed in 4 male and 11 female paupers, and 5 male and 10 female controls. In several of these cases it was a matter of low grade oligophrenia or feeble-mindedness; in such cases psychoinfantilism may perhaps justifiably be described as one side of an all round inhibition of development in the examinee. To pick out just the features of psychoinfantilism and classify them as a special social attitude seems in such cases rather artificial.

Apart from these cases there were no instances of marked psycho-infantilism in the two materials; other cases probably lay within the bounds of normal psychological variations and have therefore not been included in table 16.

Under the heading of disturbances of development it might be possible to include also homosexuality, although its etiology is disputed. Inquiries on sexual habits were not included in the interview programme. Information received suggested, however, that four of the male paupers and three of the male controls had taken part in homosexual action. Certain homosexuality has only been established in one case. It is clear that there must have been many more, even if it is uncertain whether the frequencies recorded by Kinsey apply also to Sweden. It would obviously be misleading to pay any attention to the figures obtained, and in the analysis, therefore, homosexuality has been excluded entirely. It is also doubtful if homosexuality should be included in a morbidity survey.

Mental Insufficiency

The diagnosis of mental insufficiency in this survey has been given a purely symptomatic content. It has denoted conditions characterized by uneasiness, anxiety, despair, irritability, depression, feelings of discomfort, discontent, compulsive symptoms, feelings of strain and stress or other nervous manifestations. Only quite definite cases, where the condition was causing obvious distress, were included. Cases with only tiredness, sleeplessness, headache, palpitations and other psychosomatic symptoms were not counted unless there were also direct nervous experiences.

Where the nervous symptoms were clearly the direct expression of psychoses, endogenic changes of mood, severe cerebral illnesses, etc. the examinee has not been included in the insufficiency cases. No subdivision into different nervous diagnoses has been undertaken.

Mental insufficiency in this sense was far more common among paupers than in the controls. It occurred in 31.4 per cent of the male and 38.7 per cent of the female paupers, but only in 9.7 per cent of the male and 14.4 per cent of the female controls (χ^2_c for men = 19.8***, for women = 45.8***). If even previous periods of illness were included, it was found that the morbidity ratios were 43.1 per cent for male and 59.4 per cent for female paupers. About half had thus at some time suffered from psychic insufficiency, while the corresponding figures for

the controls was 18.1 and 29.8 per cent respectively. Anamnestic information on previous insufficiency periods must, however, be regarded as rather unreliable. The information could only be confirmed to a limited extent. The figures obtained must therefore be regarded as minimum figures. It is also possible that there was a certain bias; information on previous illness was perhaps more complete for the paupers than for the controls. The difference between the two samples is, however, so large, that this possible source of error hardly need endanger the conclusions.

In both samples insufficiency symptoms of this type were more common among women than in men. This applied to all family types; the difference was greatest if earlier insufficiency periods were included. If single men and women are compared with each other and likewise married or cohabiting men and women, then for both samples $\chi^2_s = 23.9^{***}$; d.f. = 4. There was no difference worth mentioning in insufficiency morbidity between single and married or cohabiting persons.

In many cases other mental disorders were present at the same time as the insufficiency symptoms (chronic alcoholism, cerebral trauma, uncertain lesional disorders, senility etc.). If only cases with exclusively insufficiency symptoms are included, "purely nervous" persons, these symptoms were observed at the medical examination in 29 male paupers (19.0 per cent) and 11 male controls (7.6 per cent; $\chi^2_c = 7.21^{**}$), and in 94 female paupers (29.1 per cent) and 38 female controls (12.5 per cent; $\chi^2_c = 25.2^{***}$).

It is obvious that this assessment is very schematic. Other investigators might well have come to somewhat divergent quantitative results. It can, however, be regarded as certain that the paupers were "nervous" far more often than the general population, and also that the nervous symptoms of this type were more common among women than in men. On the other hand it is not possible to make direct comparisons of the results with information on neurosis frequencies which have been given for other population surveys.

Fremming (1947) has defined his group of "nervous conditions" in the following way: "Among the many patients with nervous symptoms of various kinds only those have been included here where the nervous conditions have taken the form of real suffering for the patients. These were conditions which have caused some degree of disability and reduced the general mental and physical health and (in many cases) forced the patients to seek medical advice frequently for their sufferings and possibly to be admitted to hospital, rest homes etc."

This must be a considerably more limited definition than for the mental

insufficiency in this survey. And in fact in men over 20 Fremming found a morbidity risk of only 1.8 per cent, in women over 20 years of age 2.7 per cent.

Bremer (1951) defined his concept of neurosis in the following way: "By neuroses including neurasthenic-hypochondriac states—is meant, for the purpose of the present work, nervous affections in which there is reason to suppose that the constitutional dispositions have yielded in relation to acute or chronic pressure of environment (and in which the symptoms are not of a psychotic nature)." The differentiation from psychopathy presents certain difficulties. "Acquired nervous states caused by acute or chronic organic diseases are not usually included in the present material of psychic exceptionals—except in a few cases in which the nervous symptoms are all-predominant in the clinical picture." Nervous symptoms due to the menopause and nervous reactions in psychopaths were not included.

This definition was indubitably wider than Fremming's, but hardly so comprehensive as "mental insufficiency" in this survey. Among persons over 20 Bremer found during a 5-year observation period that 3.5 per cent of the men and 10.3 per cent of the women suffered from neurosis at some time during the observation period. These figures should be somewhat higher than figures concerning the prevalence of illness as in the present material. Also the age distribution differs. If Bremer's material was standardized to the same age distribution as in the control material the neurosis frequency in men was 1.6 per cent which, despite what was said above, was lower than in the male controls if only "purely nervous" cases (see above) were included. The difference was $6.0 \pm 2.4^*$ (where the mean error has been calculated according to formulas 13 and 20). For women a neurosis frequency was obtained of 10.5 per cent, that is insignificantly lower than for the female controls.¹ The higher frequency for the male controls may possibly be due to the wider definition of nervousness in the present survey; it seems, however, by no means unlikely that nervous trouble was actually more frequent in the Stockholm population than in Bremer's north Norwegian fishing population.

Essen-Möller *et al.* (1956) also worked with the diagnosis of neurosis. "By this is meant disorders more acute, clear-cut and pronounced as regards symptom and onset, and, in many cases at least, passing disorders." So-called deviating personality was not, therefore, included, even when it perhaps might have been regarded as the result of a "long-term neurotic development". Cases of tiredness and chronic types of nervousness were not included either. This must also be regarded as a clearly more limited definition than that used in the present survey; the frequencies obtained were also considerably lower. Among the adults 1.4 per cent of the men and 2.3 per cent of the women suffered from neurosis at the examination. The morbidity risks were 4.4 and 8.2 per cent.

The higher frequency for nervousness in women in the present material thus agrees with what has been observed in other population surveys.

¹ The frequencies estimated for Bremer's material are somewhat too high. Among the 60 cases of neurosis there were 10 who were also registered as oligophrenia or psychosis. These could not be eliminated since no information on their age was given.

Senility

All people change with increasing age. This is expressed in, among other things, a lowering of the level of intellectual performance. This fall is slow in the beginning, and only after the age of 60 becomes more marked (see Miles & Miles 1932, Miles 1934, Wechsler 1939, Lorge 1941, Husén 1945, Vernon 1947, Ekman 1952, Cattell 1953, and others). For some the process is more rapid than for others. Some persons therefore age rather early, while others may be extremely well preserved even at an advanced age.

An attempt was made to decide whether the paupers deviated in this respect from the general population. For this purpose all cases were registered who had marked signs of senile mental changes.

The symptoms which were registered in the first place were reduced power of memory, especially of recent events, inability to give clear information on data and names, forgetfulness of tasks, details of everyday life etc. Also observations were made on reduced power of concentration, loosening in the association of ideas, confusion of chronological order etc. Emotional deterioration expressed in apathy, indifference and deficient hygiene also occurred sometimes. Not infrequently there was maudlin or empty euphoria, sometimes connected with some degree of lack of restraint. Both the power of comprehension and judgement were sometimes considerably reduced. Often there was increased self-centredness and stiffness, with a one track mind, a tendency to obstinacy, resistance to influence and perseveration. The behaviour had sometimes a tendency towards stereotypes and automatism. Sometimes there were anxiety, dysphoria or suspiciousness, often connected with increased irritability and disinterest. This general deterioration was generally reflected also in the point scale and Rorschach tests.

No definite boundary could be drawn between senile changes and absence of senile changes. As in all surveys of this type, a procedure of assessment was used. The estimations of different observers may very well be based on deviating unofficial scales, and comparisons with the result reached by other research workers can, therefore, not be made.

Senile changes of this type occurred among men in 22.2 per cent of the paupers and 13.9 per cent of the control cases; among women in 16.1 per cent of the paupers and 9.8 per cent of the control cases ($\chi^2 = 7.81^*$; d.f. = 2). Here it may be repeated that the controls at the medical examination were, on the average, about 2 years older than the paupers (see page 88). If the medical examination had taken place at the same age for both samples, the difference would thus have been still more marked.

Senile changes were somewhat more frequent among men than in women. The men were, however, on the average 2-3 years older than the women (see table 6, page 66), which in this connection must have played some part.

The degree of senility varied considerably. High grade changes were present in only a few cases: in the paupers in three men and six women and in the controls in one man and one woman. In these instances one might possibly be justified in speaking of a presenile, senile, or arteriosclerotic dementia. It was, however, a matter of boundary line cases and for reasons of caution they have not been classified under these diagnoses in table 16. Advanced cases of this type are probably seldom met with in the domiciliary relief population; they have been admitted to institutions. Subdivision into degrees of severity has, moreover, not been carried out.

Summary

In summing up it may be said that the differences between the samples regarding the prevalence of, and risks for, different mental illnesses were somewhat variable; this perhaps was partly due to the small samples. On the whole, however, the morbidity was higher for the paupers than for the controls. This applies to all the main groups of mental illnesses, even if the differences were not always significant.

TOTAL MORBIDITY FOR MENTAL ILLNESS

The figures for the several mental illnesses which have been given in this chapter are of different types. For certain illnesses fairly reliable frequencies could be given. Uncertainties originated mainly from isolated doubtful diagnoses. For other figures it has, on the other hand, been necessary to point out that there are conflicting opinions among psychiatrists regarding the guiding lines for diagnosis, and to an even greater extent regarding the etiology. In several of the groups of illnesses it was not possible to draw a definite boundary between health and illness.

These difficulties are unavoidable, but may be counteracted sufficiently by recording which criteria were followed in the diagnosis of each group of illnesses. On the other hand considerable difficulties arise in attempting to give the total morbidity of mental disorders. This figure would be composed partly of a series of fairly reliable ratios

and partly of a series of subjective assessment. The former could be directly compared with frequencies known in general populations, the latter, on the other hand, only with figures in a control material which was estimated on the same grounds. Nor can the total morbidity figures be obtained through the addition of the figures given in table 16. Then it would have been possible, in comparisons with other surveys, to include the illnesses or groups of illnesses which were of relevance in each particular instance. Since some of the persons interviewed were classified under several diagnoses (see page 113) the direct addition of the figures would have given too high values.

In order that some conception might be obtained of the total morbidity in mental disorders in the paupers, the several diagnoses were ranked in the following order: psychosis, oligophrenia, "cerebral disease", chronic intoxication, uncertain lesional disorder, mental insufficiency, and senility (cf. table 18). In every second column in the table were included only cases which had not suffered from any of the illnesses in the previous columns. Thus for every diagnosis group a frequency figure was obtained. By the addition of these frequency figures the total morbidity was obtained, where, according to expedience, one might be content to include the fairly reliable diagnosis-groups as psychosis, oligophrenia and "cerebral disease" or also more roughly assessed groups as chronic alcoholism, uncertain lesional disorder and mental insufficiency. The rank order of the different diagnoses may naturally be discussed. The order of the first three groups, which contains rather certain generally severe illnesses, is a matter of indifference since there was only in one case an individual classified under more than one of these diagnoses. To these cases were then added, first, chronic intoxications which must also be described as definitely lesional even if the boundary line may cause some problems. To these the uncertain lesional disorders were added, which in most cases must be regarded as rather severe conditions. To this could be added also examinees with mental insufficiency and, for the older group, senility. In this way it was possible to obtain an idea of the total morbidity for mental disorders in different groups regardless of the presence of senility. Only a rough division into age-groups could be made.

To this procedure many objections may be made. Completely unobjectionable calculations of the morbidity for mental disorders are probably impossible to make at the present time. An advantage with this procedure is that the boundaries may be drawn in different ways according to the groups of illness to be included in the estimation of

TABLE 18. *Total prevalence of mental disorders.*

For each age group two series of ratios are given. The upper figure denotes the morbidity ratios of the several diseases when these are ranked. In each column are included only cases which have not suffered from any of the diseases in the previous columns. The lower series of figures was obtained by successive addition of these morbidity ratios.

Material and age	No. of cases	At the medical examination							At the medical examination or previously						
		Psy- chosis	Oligo- phre- nia	Cere- bral disease	Chro- nic in- toxi- cation	Uncer- tain lesional disorder	Mental insuffi- ciency	Senil- ity	Psy- chosis	Oligo- phre- nia	Cere- bral disease	Chronic intoxi- cation	Uncer- tain lesional disorder	Mental insuffi- ciency	Senil- ity
<i>Male paupers</i> 16-50	47	21.3	2.1	6.4	10.6	4.3	27.7	—	23.4	2.1	8.5	12.8	4.3	31.9	—
		21.3	23.4	29.8	40.4	44.7	72.4	72.4	23.4	25.5	34.0	46.8	51.1	83.0	83.0
	40	20.0	—	5.0	20.0	15.0	25.0	—	22.5	—	5.0	17.5	15.0	25.0	—
		20.0	20.0	25.0	45.0	60.0	85.0	85.0	22.5	22.5	27.5	45.0	60.0	85.0	85.0
over 60	66	3.0	1.5	6.1	15.2	13.6	21.2	24.2	7.6	1.5	6.1	13.6	13.6	27.3	18.2
		3.0	4.5	10.6	25.8	39.4	60.6	84.8	7.6	9.1	15.2	28.8	42.4	69.7	87.9
Total	153	13.1	1.3	5.9	15.0	11.8	24.2	10.5	16.3	1.3	6.5	14.4	11.1	28.1	7.8
		13.1	14.4	20.3	35.3	46.4	70.6	81.0	16.3	17.6	24.2	38.6	49.7	77.8	85.6
<i>Male controls</i> 16-50	39	5.1	—	—	5.1	7.7	5.1	—	7.7	—	—	5.1	7.7	12.6	—
		5.1	5.1	5.1	10.3	17.9	23.1	23.1	7.7	7.7	7.7	12.8	20.5	33.3	33.3
	37	5.4	—	2.7	10.8	13.5	13.5	—	5.4	—	2.7	10.8	16.2	21.6	—
		5.4	5.4	8.1	18.9	32.4	45.9	45.9	5.4	5.4	8.1	18.9	35.1	56.8	56.8
over 60	68	4.4	—	1.5	10.3	4.4	7.4	20.6	5.9	—	2.9	10.3	4.4	11.8	19.1
		4.4	4.4	5.9	16.2	20.6	27.9	48.5	5.9	5.9	8.8	19.1	23.5	35.3	54.4
Total	144	4.9	—	1.4	9.0	7.6	8.3	9.7	6.3	—	2.1	9.0	8.3	14.6	8.3
		4.9	4.9	6.3	15.3	22.9	31.3	41.0	6.3	6.3	8.3	17.4	25.7	40.3	48.6

50-60	94	5.4	7.6	9.8	10.9	21.8	56.6	56.6	15.2	17.4	19.6	20.7	31.6	78.3	78.3
		8.5	1.1	—	3.2	5.3	37.2	1.1	11.7	1.1	—	2.1	5.3	51.1	1.1
		8.5	9.6	9.6	12.8	18.1	55.3	56.4	11.7	12.8	12.8	14.9	20.2	71.3	72.3
over 60	137	7.3	—	2.2	1.5	10.2	30.7	23.3	9.5	—	2.2	1.5	10.2	42.3	16.8
		7.3	7.3	9.5	10.9	21.1	51.8	75.1	9.5	9.5	11.7	13.1	23.3	65.6	82.4
Total	323	7.1	0.9	1.5	1.9	9.0	33.7	10.2	11.8	0.9	1.5	1.5	9.0	46.1	7.4
		7.1	8.0	9.6	11.5	20.4	54.2	64.4	11.8	12.7	14.2	15.8	24.8	70.9	78.3
<i>Female controls</i>															
16-50	78	1.3	—	—	—	—	16.7	—	2.5	—	—	—	—	35.4	—
		1.3	1.3	1.3	1.3	1.3	17.9	17.9	2.5	2.5	2.5	2.5	2.5	38.0	38.0
50-60	72	1.4	—	1.4	—	2.8	19.4	1.4	4.2	—	1.4	—	4.2	30.6	1.4
		1.4	1.4	2.8	2.8	5.6	25.0	26.4	4.2	4.2	5.6	5.6	9.7	40.3	41.7
over 60	155	2.6	—	1.3	—	1.3	10.3	15.5	3.9	—	1.3	0.6	1.3	22.1	14.3
		2.6	2.6	3.9	3.9	5.2	15.5	31.0	3.9	3.9	5.2	5.8	7.1	29.2	42.6
Total	305	2.0	—	1.0	—	1.3	14.1	8.2	3.6	—	1.0	0.3	1.6	27.9	7.5
		2.0	2.0	3.0	3.0	4.3	18.3	26.6	3.6	3.6	4.6	4.9	6.6	34.4	41.9

DIAGRAM 1. *Total prevalence of mental disorders at the medical examination.*

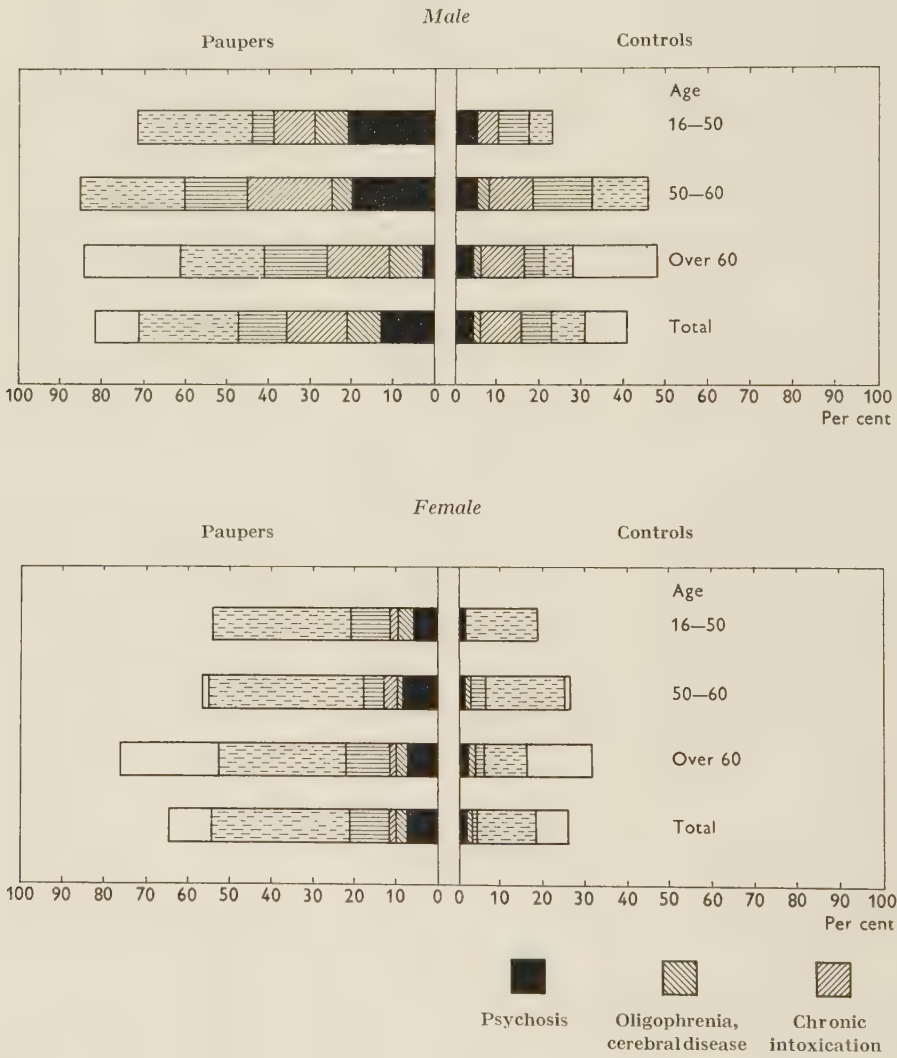
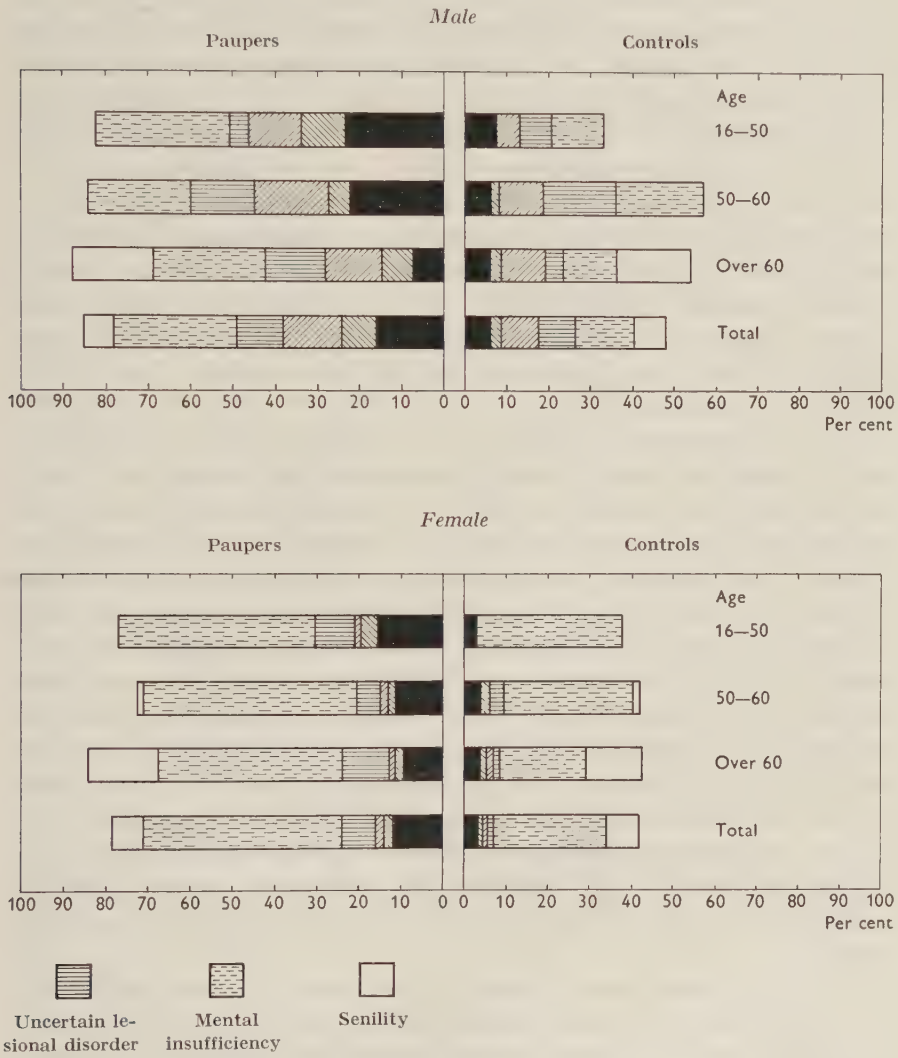


DIAGRAM 2. *Total prevalence of mental disorders at the medical examination or previously.*



morbidity. The proportions of the total morbidity for the several groups of illness is shown in diagrams 1 and 2.

It may then be pointed out that 81 per cent of the male and 64 per cent of the female paupers were suffering from mental disorder at the medical examination. The corresponding figures for the controls were 41 and 27 per cent respectively. The difference between the samples was thus considerable (χ^2_c for men = 48.7***, for women = 92.2***). From table 15 (page 104) it is seen that 19 per cent of the paupers and only 7 per cent of the controls had been previously admitted to a mental hospital (χ^2_c = 33.1***). During the 10 years preceding the selection on December 31, 1943, among the examinees 22 male and 15 female paupers had been admitted to a mental hospital, but only 2 male and 4 female controls (χ^2_c for men = 15.1***, for women = 4.86*).

The morbidity was throughout somewhat higher for single than for married or cohabiting persons (cf. table III). The difference was most marked among men (χ^2_c = 7.02*; d.f. = 2); for women the shift could have been fortuitous.

In comparisons between the sexes, therefore, consideration must be paid to family type. Despite the considerably larger number of single women than men in the material, the total morbidity for mental disorders was considerably higher in men than women (χ^2_s = 16.6***; d.f. = 2). The difference was particularly large regarding the prevalence of severe illnesses. When chronic intoxication was added to psychosis, oligophrenia and "cerebral disease" a frequency of 35 per cent was obtained for male and 12 per cent for female paupers, while mental insufficiency was somewhat more frequent among women. It was thus particularly severe mental disorders which predominated among men, which shows that the male paupers must have been far more affected by mental illness than the female paupers. During the aforementioned ten year period also, more male than female paupers had been admitted to a mental hospital (χ^2_c = 12.4***). The difference between single and married or cohabiting persons was in this respect insignificant (see table III).

If previous illness was included the difference in morbidity between the sexes was less (male paupers 86 per cent, female paupers 78 per cent). This was because the women often had transient mental insufficiency.

Regarding the different ages, it was striking that the psychosis frequency was as low as 3 per cent in the male paupers over 60, while 21 per cent of the male paupers under 60 suffered from psychoses at

the medical examination ($\chi^2_c = 8.81^{**}$). This is quite natural. Many psychoses make their appearance at a relatively early age and must therefore form a rather important indication for relief just among younger persons. Among older paupers senile change is, instead, an important indication for their receiving relief. It is in actual fact surprising that no similar tendency was to be found among female paupers. The figures were, however, rather small, and chance circumstances could have played a part. If ex-psychotics were also included, there were, moreover, also among women, fewer cases of psychosis among older than younger women, however not significantly so.

Among the controls there was no decrease in the frequency of psychosis with increasing age. By way of comparison it may be mentioned that schizophrenia, according to Strömngren (1938) shows slightly increased frequency among women with increasing age, while the reverse tendency is found among men. The prevalence of mental disease shows, however, according to Larsson & Sjögren (1954), a slow increase up to the ages 50–70, after which there is some fall. The estimations were based on information from the census 1930, which is admittedly incomplete, particularly regarding non-hospitalized cases. According to Essen-Möller *et al.* (1956) the situation is rather varying for different mental illnesses. In general, however, mental disorders become more frequent with increasing age. It may also be estimated from the report on the prevalence of mental disease in the general population which is recorded by Stockholms läns landsting (1957). In the present samples the absolute figures were so small that chance must have greatly affected the frequencies in the different age-groups.

It is of interest that the excess morbidity in psychosis in the paupers is especially related to the ages under 60. Among those who had reached 60 the difference from the controls was quite insignificant.

In the control material more mentally disordered men than women were observed at the medical examination. The difference was rather large (for single and married or cohabiting persons respectively $\chi^2_s = 11.3^{**}$; d.f. = 2). In population surveys such large differences between the sexes are not usually found (see Fremming 1947, Bremer 1951, Larsson & Sjögren 1954, and others). As is seen in table 18, the higher morbidity for men is above all due to the greater extent of chronic alcoholism and uncertain lesional disorders among them (in both Fremming's and Bremer's investigations there are far fewer cases of alcoholism). It cannot, however, be excluded that the selection of the two sexes was somewhat different. As stated previously the

female controls were, with regard to occupation, somewhat more over-represented in social group II than the male controls, whose occupational composition was closer to that of the male paupers (see table 9, page 75). The male controls should, therefore, on the average, have been situated rather lower on the social scale than the women; this may have contributed to the considerable difference in the morbidity for mental disorders between male and female controls.

Comparisons with other surveys are difficult, as pointed out previously. The results have been rather varied. Several investigators have found comparatively high frequencies. Strömgren (1938) and Fremming (1947) found that on Bornholm about 12 per cent had, or had previously had, mental deviations. Ekblad (1948) observed 15 per cent psychopaths among conscript sailors. Kattentidt (1926) found mental deviations in about 20 per cent of the sibs of wives of general paralysis patients in Munich (according to Bremer's report). Fraser (1947) found in engineering factories that 10 per cent of the workers had suffered from definite and disabling neurotic illness, and a further 20 per cent from minor forms of neurosis during the course of six months. Riedel (1937) observed 25 per cent, Bremer (excluding war neuroses) 22 per cent, Leighton (1956) 37 per cent, Srole & Langner (1957) 24 per cent mentally disturbed etc. (cf. also the literature surveys in Lemkau *et al.* 1943, Fremming 1947, Bremer 1951, and others). The paupers had considerably higher morbidity figures.

It is a matter of interest whether there is an agreement between the morbidity in the control material and the general population. Bremer's and Essen-Möller's material will be used as an example of the difficulties such comparisons are faced with.

Bremer recorded the number of persons in the population who were mentally ill on a certain day or had been mentally ill during an observation period of 5 years (for psychoses, however, cases were included which had been ill previously, but recovered before the beginning of the observation period). Such figures can neither be compared with the number of persons who were ill at the medical examination or with the number of such cases plus those who had been ill previously. Here it is, however, only a matter of exemplifying the difficulties in comparisons of this type, and then I used the frequencies for the controls which refer to illness at the medical examination or previously; in an actual comparison these frequencies would obviously be too high.

One problem is the different age composition. This difficulty could sometimes be overcome by standardization of the material to the same age distribution, a process which, however, in a small material introduces considerable sources of error. The different distribution in family types could sometimes be counteracted by comparing individuals with the same family type in the

different materials. Comparison of the total morbidity is, however, made more difficult also since this is composed of different subfrequencies which sometimes are comparable (such comparisons have also been made already), sometimes quite incommensurable.

If one leaves out senility, which Bremer did not classify, the morbidity in the female controls was 34 per cent, among the women in Bremer's material 25 per cent. In these figures were included the various illnesses with quite dissimilar weights. In Bremer's material psychoses were more frequent, and occurred in 4.2 per cent, and oligophrenia (including debility) which occurred in 4.9 per cent of the population, while in the female controls psychoses occurred in 3.6 per cent and none were classified as oligophrenia. In Bremer, in addition, there was a group of psychopaths, but on the other hand no cerebral diseases. The number of neuroses was lower than the number of mental insufficiency cases in the control material. For the male control cases the morbidity was 40 per cent if senility is not included, that is, considerably higher than Bremer's 19 per cent. Psychoses occurred in 6.3 per cent against 2.9 per cent in Bremer's material and there were no cases of oligophrenia against 6.2 per cent in Bremer (who drew the boundary lines for mental defect far more widely). The big difference between the total morbidity figures originated above all from the large number of chronic alcoholists among the male controls. In Bremer's material there was only one such case.

For both sexes the figures were thus constituted in quite different ways in the two surveys. All comparisons of the total morbidity must therefore be hazardous.

Essen-Möller *et al.* (1956) in his survey of the mental conditions in the population in two Skåne parishes also gave a series of frequency figures. The extent of mental illness could thus be defined in different ways, depending upon which conditions were included. The groups were, however, quite different from this survey. In one division they distinguished the indisputable pathologic cases at the medical examination (8.1 per cent among men and 8.7 per cent among women in the population with all age-groups included). To this was added a number of cases which were denoted as probably pathologic "in the somewhat wider sense of Sjöbring's psychiatry". This brings the figure up to 24.0 and 32.6 per cent respectively, that is lower for men but higher for women than the frequencies for the total prevalence of mental illness in the control material. Finally even conditions where "a diagnosis of abnormality was not likely but could perhaps not be discarded" were included and then the rate for men was 51.4 per cent and for women 58.3 per cent. These are far higher figures than in the control material but lower than among paupers. No actual comparisons, therefore can be made between the two surveys. The age composition and distribution of family types was also quite different. The number of cases with symptoms of mental illness and deviations increased steeply with age, and if the Skåne material were standardized to the same age distribution as in the pauper material the frequencies would have been considerably increased.

As a comparison may also be mentioned a representative interview survey in New York (see Rennie *et al.* 1957 and Srole & Langner 1957), in which symptoms of anxiety were observed in no less than 75 per cent of the res-

pondents, while 24 per cent suffered from severe disturbances. Pasamanick declared in regard to this that in a recent survey in Baltimore, where a random sample of the entire urban population was examined by physicians, the prevalence of psychiatric entities, excluding personality disorders, was well under 10 per cent. The criteria must, according to Pasamanick, have differed in the two surveys.

These examples may adequately demonstrate the difficulties in comparing psychiatric morbidity surveys carried out in different ways and on different populations. It is for this reason that a control material investigated by the same methods is necessary in a survey of a special population.

Thus it is not easy to give exact information as to how many persons within a population are mentally disordered. It depends above all on what is meant by mental disorder and what kinds of cases therefore one desires to include. To the comparatively high morbidity frequencies which have been obtained in this survey there could be added some debility cases (which Bremer, for instance, has done). Among the male paupers who have been classified as mentally healthy there were no mentally defective cases, but among the corresponding female paupers there were 4. Among the male controls there were 3, among the female controls 10. The mental defectives (apart from the oligophrenia cases above) have, however, in this survey been regarded as normal variations and not as mentally ill. It is of course possible that a few other cases could have been classified as "oligophrenia"; here a purely schematic boundary has been drawn.

Among the mentally healthy persons there were many with social behaviour disorders in the form of abuse of alcohol, criminality or vagrancy. This applied to 10.5 per cent of the male and 1.5 per cent of the female paupers and 16.7 per cent of the male and 2.3 per cent of the female controls. Altogether therefore, mental disorders or behaviour disorders of some kind have occurred in no less than 96 per cent of the male and 80 per cent of the female paupers and in 65 per cent of the male and 44 per cent of the female controls.

CHAPTER 7

PHYSICAL ILLNESS

INTRODUCTION

The number of cases of physical illness is recorded in table II which follows the 1948 version of WHO's medical nomenclature. Here, as previously for mental disorders, the number of illnesses has been given at the medical examination alone, and also at the medical examination or previously. The reliability of the material may be assumed to vary for different illnesses; this will be discussed in more detail in the text. Probably the figures for past illness were most uncertain; they were partly based on anamnestic data.

Risk calculations for physical illness are not usually carried out by the methods used in psychiatry. Instead the method described on page 51 is usually used (formula 14). These calculations may, as stated already (page 40), also be carried out on limited populations by using anamnestic data and estimating the annual risks at different ages during the development of the individuals. Risk calculations of this type have, however, only been carried out by way of exception in the present survey, since comparable data from other surveys are usually lacking. In comparisons with surveys of other populations, it was usually possible to use unanalysed records of the prevalence of illness. However, it has often been necessary first to standardize the populations in question to the same age distribution as in the samples.

Concerning the extent of physical illness the paupers have, therefore, been compared with the controls and also with the following material:

(1) *Rülcker's survey* of the pauper population in Stockholm 1937-38 (1942). In this is reported the prevalence of illness in 2086 paupers, mainly based on medical certificates in the social welfare register documents, in some cases also on medical examinations (cf. page 45).

(2) *Teilmann's survey* of paupers in Denmark, which covers a random sample of 1035 persons from the whole country (1954). This survey was carried out parallel with the present inventory of paupers in Stockholm and in much the same way. Teilmann's survey concerned persons who had received relief for at least 8 months from 1944-1945 and referred to the prevalence at the time of the survey. Some information on previous illnesses was, however, also

obtained. The figure for non-examined in Copenhagen was 21 per cent, in the rest of Denmark 9 per cent. The various illnesses were not recorded separately for Copenhagen. The comparisons must then refer to the whole material. The age distribution deviated somewhat from that of the present material. Particularly the older age-groups were less fully represented, since many of them received pensions and were then not included in the material. In the present material on the other hand, pensioners were included (see page 62).

(3) *Stockholm Municipal Health Survey 1954* (Frisk *et al.* 1957). In this health survey a medical examination was made of every case following a definite routine. It was the prevalence of illness which was educed. The figure for non-examined was 31 per cent, which must mean that the morbidity figures obtained were not very reliable. The age distribution diverged greatly from that in the samples, and a condition for comparison must therefore be a standardization of the morbidity figures to the same age distribution as in the relief material. A further source of error is that this health control took place several years later than the survey of paupers in Stockholm. The material covered 2504 persons. By the courtesy of Stockholm Office of Statistics and the Hospital Directorate, the material required for the standardization of age was put at my disposal.

(4) *The sickness survey in Denmark*. Here the preliminary report 1953 has been used; this contained the result of the surveys in 1951 and 1952. The survey referred to health conditions in the previous month. It is therefore not possible to make a direct comparison of the results with the present survey which referred to the prevalence of illness on a certain day (cf. Soop 1955). However certain comparisons are possible for illnesses of long duration. The figures for non-examined were 17–18 per cent. The age distribution was different, which must be taken into consideration in comparisons. Another source of error is that the Danish survey was carried out as a canvass survey with supplementary data from attending physicians. A medical examination was thus not included in the programme; in addition the interviews were not made by physicians. Experience shows that interviews made by a physician usually result in higher morbidity (see Horwitz 1952, and others). It is also conceivable that the prevalence of illness in the whole of Denmark and in Stockholm may show dissimilar trends.

(5) In addition comparisons have been made with a number of surveys on the extent of various illnesses in Sweden and other countries. The nature of the material used in the comparison is indicated each time in the text.

It is apparant from this account that all comparable material has some shortcomings. The selective factors described in chapter 5 sometimes caused difficulties in drawing definite conclusions from comparisons with other material. In particular it should be remembered that the paupers come primarily from the lower social strata. This applies to Rülcker's and Teilmann's material also, but not to the Health Survey in Stockholm and the sickness survey in Denmark.

It is thus clear that all comparisons of this kind must be hazardous.

This is particularly the case with comparisons of total morbidity. In the following account I have considered each time how demonstrable differences between the samples and other material may be interpreted.

THE VARIOUS DISEASES

Tuberculosis

Active pulmonary tuberculosis was present in 15.1 per cent of the male and 5.4 per cent of the female paupers at the medical examination. Among the controls the corresponding figures were 1.3 and 0.3 per cent respectively. All these cases had been treated earlier either as inpatients or outpatients. They were also registered at the dispensaries and had been certified as sick by the dispensary or other physicians. The frequency figures are therefore probably rather reliable; it is unlikely that there were other clinical cases in the two samples, if the non-examined are left out of account. On the other hand it is possible that there were incipient cases that had not yet been diagnosed. Such cases, as has already been pointed out, are of no interest in this survey.

The differences between the samples was thus considerable (χ^2_c for men = 17.6***, for women = 12.9***). Among paupers there were in addition a few active cases of pleurisy, tuberculosis of the intestines, spondylitis with fistula formation, salpingitis, tenosynovitis etc. alone or in combination with pulmonary tuberculosis (healed cases e.g. invalidity following spondylitis, are not included). If such cases were included the frequency of tuberculosis would be 15.7 per cent for men and 6.9 per cent for women.

Rülcker found in his analysis of the pauper population of Stockholm that pulmonary tuberculosis was present in 10.7 per cent of men and 4.5 per cent of women, and other forms of tuberculosis in 0.7 and 1.1 per cent respectively; this gives a total of 11.4 per cent for men and 5.6 per cent for women, which are somewhat lower figures than in the present survey. This is probably due to the fact that the present survey concerns a selection of long-term relief cases. Teilmann, on the other hand, found only 4 cases of active tuberculosis; in Denmark tuberculosis patients usually receive a pension and then leave the relief clientele.

In comparison it may be stated that in the surveys showing the extent of tuberculosis which were made in connection with the mass radiography investigations, the figures obtained were considerably lower. In an examination of over one million persons 1950-1954 it could, for

instance, be demonstrated that about 1.2 per cent suffered from pulmonary tuberculosis (Wijkström 1955).

At the Health Survey in Stockholm pulmonary tuberculosis was observed in 2.4 per cent of the men and 0.8 per cent of the women (after the material was standardized to the same age distribution as in the samples). Many of these cases were discovered at the examination. None the less the frequency figures were, as is apparant, considerably lower than for the paupers, but about on the same level as for the controls.

Usually tuberculosis is about equally prevalent among men and women (see Dahlberg 1937, and others). It is apparant from the above account, however, that there were more cases of tuberculosis in male than in female paupers. In both sexes tuberculosis was more common in married and cohabiting persons than in persons living alone. In comparing the sexes therefore, consideration must be paid to family type. Both among single and married or cohabiting paupers tuberculosis morbidity was higher for men than for women, however not significantly so.

One difficulty in determining the prevalence of tuberculosis is that there may sometimes be uncertainty as to whether a case may be regarded as active or not. The tuberculosis physicians are generally rather careful in their statements. Control usually continues for years. Therefore a summation has been made here of all cases of active or previous tuberculosis. The dependability of these data is probably variable. The figures for cases who have had pulmonary tuberculosis, tuberculosis of bones or joints and the genito-urinary system are probably fairly reliable. On the other hand it is possible that pleurisy, tuberculosis of the lymphatic system etc. occurred either alone or as a complication, particularly of pulmonary tuberculosis, more often than is apparant from table II. The total frequencies are therefore possibly too low.

Altogether 19.3 per cent of the male and 13.9 per cent of the female paupers have had pulmonary tuberculosis, while the corresponding figures for the controls were 7.2 and 3.2 per cent respectively (χ^2 for men = 8.83**, for women = 21.8***). For other forms of tuberculosis the figures were small and no definite differences between the samples could be demonstrated. Altogether a total of 25.3 per cent of the male paupers and 11.8 per cent of the male controls had suffered from tuberculosis, while the corresponding figures for women were 22.3 and 8.3 per cent respectively. The differences between the sexes could be

fortuitous. In a few cases there was invalidity after cured or active tuberculosis (kyphosis, ankylosis of joints etc.). They were 9 paupers and one control case, the latter was a very mild one ($\chi_c^2 = 4.51^*$).

About $\frac{1}{4}$ of the paupers thus had suffered from tuberculosis which shows the great importance of tuberculosis as a pauperizing factor. It is also remarkable that about $\frac{1}{10}$ of the control cases had suffered from tuberculosis with clinical symptoms at some time during their lives; and even this is probably a question of minimum figures.

Venereal Diseases

Increased frequencies of tertiary syphilis and gonorrhea with complications would probably be expected among the paupers. This was the case particularly among the women. Here, namely, 4.8 per cent of the paupers but only 0.6 per cent of the controls had previously been charged with soliciting (cf. Inghe, unpublished data).

Active new cases of syphilis or gonorrhea were, as was expected, not observed. Such short term illnesses usually are relatively seldom observed in prevalence surveys (cf. page 35). The number of cases who had congenital syphilis, cardiovascular changes, tabes dorsales, general paralysis, etc. (see table II) among male paupers was 3.6 per cent and among female paupers 2.7 per cent, while the corresponding figures for the controls were 3.3 and 1.0 per cent respectively. The differences between the samples was thus not large.

Rülcker found syphilis in only 1.2 per cent of the men and 0.4 per cent of the women, possibly because not all the cases received a medical examination.

In the Health Survey in Stockholm seven cases of syphilis were observed in men and two cases in women. After standardization to the same age distribution as in the control material this corresponded to 0.9 per cent of the men and 0.1 per cent of the women, which did not diverge significantly from the control cases and the male paupers. On the other hand the difference from the female paupers was significant ($2.6 \pm 0.9^{**}$). When the figures are so small, however, the process of standardization incurs such large sources of error that it is hardly possible to draw any conclusions. Four persons in the health survey were not aware of the infection previously. In the samples only one case was found which was not previously known. It is possible that there were more cases; a Wassermann test was not taken as a routine procedure. It is therefore possible that the syphilis frequency is somewhat increased in the controls. It might perhaps be related to the lower

social strata from which the controls were drawn; perhaps also the non-examined in the health survey included, among others, cases of venereal disease. Two of the individuals in the present survey who were particularly resistant to persuasion explained later that it was because they were embarrassed about their syphilis.

If cases with a history of syphilis are included, there were 7.8 per cent of the male paupers and 5.9 per cent of the male controls who had suffered from syphilis. Teilmann found that 7.4 per cent of the male paupers in Copenhagen had syphilis. In his diagnosis of syphilis he had access to the records of the Institute of Serology, containing the results of all serum tests in Denmark; no corresponding institution exists in Sweden.

According to Dahlberg (1934) the total risk of contracting syphilis for men aged 60 in Stockholm 1928–32 was 6.6 per cent. For the male paupers the total risk at 60 was 8.7 per cent (calculated according to formula 14), which agrees rather well. Analogous calculations for the controls could not be made, since in some instances the disease among them was first diagnosed many years after it had been contracted. It is, however, doubtful whether the good agreement was more than apparant. It is probable, in spite of everything, that some persons concealed a past attack of syphilis. The agreement seems in fact far too good; syphilis must reasonably be expected to occur somewhat more frequently in lower than in higher classes of society (see Smillie 1946, Havell & Clark 1953, Gjestland 1955, and others). This, however, applies to both samples; nothing has been found to suggest that syphilis was particularly frequent just among the paupers.

Among the women 5.4 per cent of the paupers and 1.6 per cent of the controls had suffered from syphilis ($\chi^2 = 5.79^*$). It is thus possible that syphilis was somewhat more frequent in the paupers than in the controls. The introductory hypothesis would then be verified in some degree.

The total risk of having contracted syphilis was for women aged 60 1928–32, 2.8 per cent (Dahlberg 1934). For female paupers the total risk was 5.8 per cent (calculated according to formula 14). In Teilmann's material no less than 12.3 of the female paupers had had syphilis, which also suggests a considerably increased risk. A definite statement can, however, hardly be made. In all probability some cases of syphilis have not come to light. This would admittedly mean a still greater deviation from Dahlberg's risk figures, but even the control cases were a selected group and should have a higher risk than the general population. It is possible that they were even more reticent

about past attacks of syphilis than the paupers. The differences given above may therefore be too large.

Only two of the male and one of the female paupers suffered from complications of gonorrhea, and none of the controls. In the Health Survey four men and none of the women had gonorrhea or complications of gonorrhea, which does not deviate from the present sample.

Information about previous attacks of gonorrhea was, as expected, unreliable. Of the male paupers 14.5 per cent and of the male controls 8.6 per cent declared that they had had gonorrhea. According to Dahlberg the risk for men of 60 in Stockholm is 56.2 per cent. Among the women 6.6 per cent of the paupers and 2.2 per cent of the controls had suffered from gonorrhea, while Dahlberg's risk figure was for women aged 60 20.1 per cent. (Dahlberg's risk figures were certainly too high, since information was lacking on which cases were first infections.)

In summing up it may be said that certain circumstances point to an excess morbidity for syphilis in female paupers. More female paupers than controls had thus had syphilis. At the medical examination the morbidity for syphilis was found to be possibly somewhat higher in female paupers than in the women in the Health Survey in Stockholm. The total risks for syphilis were also higher for the female paupers than, in so far as it is known, for the general population. Moreover the corresponding Danish survey showed strikingly high syphilis figures for female paupers. This also agrees with the fact that considerably more of the female paupers in Stockholm than of the controls had been charged with soliciting. No definite statement can be made on this matter however, on account of the nature of the material. It is possible that some of the persons in the various materials concealed a past attack of syphilis.

There was nothing to suggest a deviation of the male paupers from the general population. Regarding gonorrhea the material was certainly incomplete.

Infectious Diseases

Infectious diseases were not observed in the material, since the medical examination was postponed in such cases until a later date. On the other hand there were anamnestic data on past attacks of such diseases. These are, however, probably rather unreliable. In the analysis, therefore, only a few characteristic diseases were included (see table II). For these illnesses no definite differences could be demonstrated

between the samples, and there was no deviation in comparisons with Rülcker's and Teilmann's material, or with the Health Survey in Stockholm. Three cases of poliomyelitis with invalidity occurred in the female paupers (1.0 per cent) which could have been fortuitous (cf. table 26).

There is thus nothing to suggest that infectious diseases of this type play any role to speak of in pauperization.

Tumors

It may be assumed that many patients are not aware of the existence of benign tumors of different types. Myomas are occasionally discovered, for instance, by pure chance, and sometimes are operated on, sometimes not. In table II, therefore, only malignant tumors and tumors of the brain are recorded.

Among the paupers malignant tumors were observed in 1.2 per cent of the men and 1.8 per cent of the women, in the controls in 3.3 and 0.6 per cent respectively. The differences fall well within the range of chance variations. Information on previous tumors did not show any differences worth mentioning either. In addition to what is recorded in table II, six of the female paupers and two of the female controls had previously suffered from unspecified tumors (e.g. "uterine tumors"), where it is not known if they were malignant or benign. Even if all these cases were malignant tumors, the differences between the samples would not have been significant.

The result did not differ from the findings of Rülcker and Teilmann. In the Health Survey in Stockholm malignant tumors were found in 12 persons, which (after standardization for age) corresponds to a frequency of 0.8 per cent for men and 1.0 per cent for women. In 7 of the cases the disease had not previously been suspected. The result from the more thorough search for such cases in the Health Survey shows that the frequencies in the present survey are probably somewhat too low; however one case of cancer ventriculi was discovered.

It thus appears that tumors also play no perceptible part in the development of pauperism. This is probably because the course of malignant tumor is so rapid and severe that no prolonged relief situation has time to develop. If the patient manages to survive after treatment, complete recovery often results. In individual cases (after amputations etc.) defects do, however, occur, which may cause disability. This was the case in this survey in five paupers and two controls. These are recorded in the analysis of invalidity resulting from illness (table 26).

Allergic Diseases

In a survey of this kind it is often difficult to decide which skin diseases are allergic and which have another etiology. No special group of skin allergy has therefore been categorized, but such cases have been included with other skin diseases. Allergic rhinitis is also difficult to distinguish from other forms of rhinitis and therefore was not included at all. Histories of hay fever and so on are probably very unreliable; the same applies to information on urticaria. On the other hand the patient is probably well aware of the existence of bronchial asthma. In almost all such cases there is a long history and detailed extracts from case-papers from various hospitals. All the cases of asthma found in the Health Survey in Stockholm had also been diagnosed previously.

Among the men asthma occurred in about the same extent in both samples. Thus 3.0 per cent of the paupers and 3.9 per cent of the controls had asthma at the examination. Among the women 5.4 per cent of the paupers had asthma, and 1.0 per cent of the controls ($\chi^2_c = 8.82^{**}$).

In Rülcker's survey asthma was found in 1.9 per cent of the men and 1.4 per cent of the women. The somewhat higher figures in the present survey are probably due to the fact that this was a more long-term selection. Teilmann found 2.3 per cent of the men had asthma, that is about the same as in the present survey. On the other hand only 0.6 per cent of the women had asthma, which was considerably less than in the present survey ($\chi^2_c = 20.1^{***}$) and also lower than among the controls. The differences are difficult to explain. From the preliminary report of the Danish sickness survey it is possible to calculate that in the age-group 40-59 asthma occurred in something like 0.6 per cent of the men and 0.7 per cent of the women.¹ This agrees rather well, regarding the women, with Teilmann's results, but on the other hand not very well regarding the men. For both sexes it lies far below the figures for the controls in the present survey. It has, however, been argued that the frequency of asthma varies considerably in different districts (cf. Tiefensee 1926, Storm v. Leeuwen 1928, Gram 1931, Claussen 1948, and others). Of greater interest, therefore, is a comparison with the Health Survey in Stockholm. After standardization to the

¹ In the report there is information on age only for cases which were interviewed February-July 1952. The illnesses are only divided into age-groups 15-39, 40-59 and 60 or over. No age standardization could therefore be carried out. The age group 40-59 probably corresponds best to the age distribution in both the Danish and Swedish surveys of pauper populations and has been used for approximate comparisons.

same age distribution as in the relief group, the frequency obtained for asthma in men was 1.4 per cent, and for women 2.0 per cent, which does not diverge significantly from the controls and male paupers. For the female paupers the divergence from the Health Survey was, on the other hand, larger (difference $3.4 \pm 1.4^*$).

The frequencies of asthma obtained in both the Health Survey and in the controls are far higher than those of most other surveys. Isserlin (1924) started from health insurance statistics and estimated the asthma frequency in Germany as about 0.7 per cent. Tiefensee (1926) made inquiries from doctors in East Prussia, and obtained an asthma frequency of 0.05 per cent. Storm v. Leeuwen (1928) estimated on the basis of information from colleagues that the asthma frequency on a Dutch island was 0.23 per cent. Claussen (1948) made systematic enquiries among general practitioners and found a frequency of 0.4 per cent in Norway. All these surveys related to material obtained at second hand. Service (1939), however, made a personal examination of a random selection of 1000 families comprising 3141 members in Colorado Springs, U.S.A., and found that 3.6 per cent suffered from asthma. Some, however, had moved into the district just on account of their asthma. Of the native population 2.1 per cent had asthma, a frequency figure of similar proportions to those in the Health Survey and the controls. Minor deviations may be entirely due to the degree of triviality of the cases included; the borderline is difficult to define, and therefore varies in different surveys.

It may also be mentioned in passing that the higher asthma morbidity among men which some authors have found (Kämmerer & Michel 1926, Tiefensee 1926, Claussen 1948), was not found in the Health Survey. In the control material there were more cases of asthma among the men than the women, but it could have been fortuitous.

To recapitulate, it may be stated that there is probably a somewhat increased asthma morbidity for the female paupers. For male paupers, on the other hand, there was no definite increase. It did not seem that the different distribution of family types played any part here (cf. table III).

The difference between men and women in this respect could be related to the fact that, apart from acute cases, asthma usually causes only slight disability. Only a small number are completely disabled (according to Claussen 1948 4.3 per cent of asthmatic men and 4.5 per cent of asthmatic women). A moderate degree of disability does not mean that a man will be unemployed if employment conditions are good; for women, on the other hand, such a handicap may be calamitous.

Diseases of the Endocrine System

Among diseases of the endocrine system it is in the first place diseases of the thyroid gland and diabetes mellitus which are of interest. Only isolated cases of other endocrine diseases occurred in this survey (see table II). Adiposogenital dystrophy has not been recorded here, but these cases have been included with other cases of obesity under the next heading.

Among the male paupers there was only one case of goitre, a man with thyrotoxicosis. In the controls there was one case of myxedema. In addition one of the controls had previously suffered from thyrotoxicosis. Both patients with thyrotoxicosis had been operated upon. Thus for the men the samples showed no difference in the prevalence of disease of the thyroid gland. In Teilmann's material only one case of Basedow's disease occurred. In the Health Survey there was only one instance of myxedema and nine cases of simple goitre or nontoxic nodular goitre. No significant deviations from the samples could be demonstrated.

The frequency of goitre varies, as is well known, in different parts of the country (see Höjer 1931, and others). This also applies to the prevalence of thyrotoxicosis (see Sällström 1935, and others). Somewhat higher figures have been obtained for conscripts in Stockholm (see Höjer 1931). Comparison with other surveys is naturally hazardous, since the technique of examination may have differed, but there is nothing that suggests an increased frequency of goitre for the male paupers.

It is widely known that both struma nodosa and Basedow's disease are more common in women than in men (cf. Höjer 1931, Sällström 1935, and others). It applies also to this material. Among the female paupers there were four cases of thyrotoxicosis and four cases of hypothyroidism (of which two followed an operation for goitre), in all 2.4 per cent. Among the female controls only one case of thyrotoxicosis was found (0.3 per cent). In addition there occurred a few cases of simple goitre and nontoxic goitre (3.3 per cent in the paupers and 1.9 per cent in the controls). Altogether goitre occurred among women in 5.7 per cent of the paupers and 2.2 per cent of the controls. If previous cases of goitre are included the frequency increased to 9.9 and 3.5 per cent respectively. It is, however, necessary to be cautious in drawing conclusions, since it is not impossible that more cases of simple goitre were observed among the paupers, far more of whom received a physical examination than was the case with the controls.

In these figures the cases of thyrotoxicosis are of special interest. If persons who have previously suffered from the illness are also included, it is found that thyrotoxicosis among the women occurred in 3.6 per cent of the paupers and 0.6 per cent of the controls ($\chi^2_c = 5.39^*$). These differences deserve more consideration, since they were exclusively certain cases, confirmed by extracts from hospital case-papers. It was also characteristic that thyroidectomy among the women (easily established by inspection of the neck) was performed more often in the paupers (10 cases, 3.0 per cent) than in the controls (2 cases, 0.6 per cent); $\chi^2_c = 3.76$; $p = 0.053$.

Teilmann observed Basedow's disease or myxedema in 1.5 per cent of the women on relief. Rülcker found hyperthyroidism in 0.4 per cent; the lower frequency may be due to the fact that most of the cases did not receive a medical examination. In the Health Survey in Stockholm only two cases of hyperthyroidism and three cases of myxedema were found among women born after 1875, which, after standardization for age, would give a total frequency of 0.5 per cent, i.e. lower than among female paupers (difference $1.9 \pm 0.9^*$). Since the procedure of standardization is associated with great risks in such a small number of cases, it is difficult to draw any conclusions from this. Nontoxic goitre, on the other hand, was demonstrated in 63 women, which (after correction for age) corresponds to a rate of 4.4 per cent, i.e. higher than in the samples. This agrees with the above assumption that some of these cases of goitre were overlooked, particularly in the controls.

No frequency for goitre in women in Stockholm has been given separately by Höjer (1931). A comparison, also, would probably be hazardous, as already pointed out, considering the possible differences in the examination methods. In Sällström's survey (1935) there are remarkably many cases of thyrotoxicosis in Stockholm, which was related to the fact that even persons living in other parts of the country were treated at some of the hospitals. Comparisons, therefore, cannot be made.

It thus seems as if the prevalence of toxic goitre is somewhat increased in female paupers, while on the other hand it is more difficult to make a statement on the extent of simple goitre.

The diagnosis of diabetes mellitus is probably also very reliable and well verified. Since the urine was not tested for sugar as a routine in all cases, the disease could have been overlooked in individual cases where the patients were not aware of the illness themselves. In the

Health Survey in Stockholm 14 cases of diabetes were found which were not previously known. Here only one new case was discovered.

Among women there were 1.8 per cent of the paupers and 1.6 per cent of the controls who had diabetes. This agrees roughly with the findings of Teilmann and Rülcker (1.3 and 1.8 per cent respectively) and even with the result of the Health Survey in Stockholm (1.5 per cent after correction for age). There was thus no increase in the frequency of diabetes in female paupers.

The difference in the frequency of diabetes between men and women is usually insignificant. Dahlberg *et al.* (1947) found a somewhat higher frequency in men, which was mainly due to higher morbidity in young men. In most computations, on the other hand, somewhat more diabetes has been found among women, but usually only after the menopause (cf. Hanssen 1946, Joslin 1946, Statens offentliga utredningar 1948, Hågensen 1949, Dreyer & Hey 1953, Mohnike 1954, and others); in some analyses the excess is manifest as early as at 30–35 years of age (cf. e.g. Barach 1949). It is possible that women's excess morbidity has increased during recent years (Lindhardt 1954). The situation seems, however, to vary somewhat in different countries. The male controls showed somewhat higher frequencies of diabetes (3.3 per cent) than the female; this could, however, have been fortuitous. The frequency of diabetes in male paupers (6.6 per cent) was, on the other hand, demonstrably higher than in the females ($\chi^2_c = 6.40^*$). This applied both to single and married or cohabiting persons. The differences were, however, not significant for the respective family types. The difference between the male paupers and controls was not significant either. In both samples the number of cases of diabetes was greater than in Teilmann's and Rülcker's surveys (1.4 and 1.8 per cent respectively), and also more than in the Health Survey. In this 11 cases of diabetes were found in men, which (after adjustment for age) corresponds to 1.7 per cent, that is, considerably lower than for paupers (difference $4.9 \pm 2.0^*$); the divergence from the controls could have been fortuitous.

Other surveys of general populations have usually given lower frequencies than in the Health Survey. In the diabetes survey 1942 (Dahlberg *et al.* 1947), diabetes was found in Stockholm in 0.51 per cent of the men and 0.46 per cent of the women. Möllerström (1946) reckoned the frequency of diabetes in the whole country to at least 0.8 per cent. In Bergen Hanssen (1946) observed diabetes in 0.32 per cent of the men and 0.43 per cent of the women. In Denmark Dreyer & Hey

(1953) found diabetes (estimated with the guidance of the records of the distribution of sugar substitutes) in 0.38 per cent of men and 0.47 per cent of women. In the Danish sickness survey there was 0.50 per cent among adults (Lindhardt 1954). In Odense Horstmann (1950) demonstrated a diabetes frequency of 0.9 per cent. In England the frequency has been estimated as about 0.6 per cent (Walker 1955), in U.S.A. as about 0.7 per cent (cf. Joslin 1946, where there is an exhaustive bibliography on previous surveys). These low frequencies are, however, not based on direct medical examinations, but on questionnaires and interviews. Results have been obtained in medical examination surveys which are more comparable with the Health Survey in Stockholm. Schliack (see Mohnike 1954) found, for instance, in Berlin 1.5 per cent; in U.S.A. repeated surveys have shown a prevalence of diabetes of about 2 per cent (see for instance Wilkerson *et al.* 1947, Leavell & Clark 1953, and others). Also these frequencies are, however, lower than what were demonstrated in the samples, particularly in the paupers. It seems, therefore, as if there is a real increase of diabetes in the male paupers. Teilmann, who compared his material with Horstmann's, also considered that he could demonstrate a slight increase in the number of diabetes cases among paupers. The increase in the controls is difficult to explain; it is, however, not larger than that it could be fortuitous.

It may seem surprising that the prevalence of diabetes is increased for male but not for female paupers. Earlier in this work the hypothesis was put forward that severe illnesses are more frequent among the male than the female paupers, since men find it easier to remain at work when they suffer from illnesses which only cause moderate disability. Diabetes often produces no change worth mentioning in capacity for work (see e.g. the analysis of different surveys by Elstad 1946, cf. also Andrén 1939, and others). This applies, however, in the first place, to young diabetic patients. Dahlberg *et al.* (1947) showed that in the ages 0–49 there were only 5–6 per cent of the male diabetics who were completely or almost completely disabled, in the age-group 50 and over on the other hand it was 22 per cent. Among the female diabetics in the age-group 50 and over it was still more, 37 per cent, who were completely or almost completely disabled. Thus elderly persons with diabetes are fairly often severely handicapped; this makes it easier to explain why diabetes is relatively frequent among men on relief.

In summing up it may be said that there is much that suggests an actual increase in the diabetes frequency for male paupers, while no such increase can be demonstrated for female paupers.

Metabolic Diseases

The only disease of metabolism for which it was worth collecting data in the present survey was obesity. It may also be pointed out that among the male paupers there were two and among the male controls one case of arthritis urica. Thus there were no differences between the two samples. This agrees with Teilmann's findings in his comparison between paupers and the general population. In the Health Survey in Stockholm no cases of this disease were found.

Teilmann showed in his survey of Danish paupers that there was considerably more obesity among the women on relief than in the general population. No certain difference could be demonstrated for the men. Since this observation is of considerable interest, similar analyses have been made of this material. For the sake of comparison the same procedure has been used as Teilmann followed.

Since the differential diagnosis between different kinds of obesity is difficult, all cases of obesity have been included in this analysis, even if isolated cases should properly have been classified under other headings (e.g. adiposogenital dystrophy). There may be different opinions as to where the boundary shall be set between obesity and normal fat deposits; the essential point is that the basis of judgement has been the same throughout. Here a clinical estimation was made of the development of fat deposits observed at the medical examination, and also, in those cases where a physical examination was made, from the measurement of height and weight.

A clinical estimation of this kind is naturally rather unreliable. Obvious cases of obesity can, however, be diagnosed without difficulty in this way, even although the patient in many cases is not undressed. The frequency of obesity in men was summarily estimated at 10.8 per cent of the paupers and 9.9 per cent of the controls. There was thus no difference. Among the women the frequency of obesity was 25.0 per cent in the paupers and 14.7 per cent in the controls ($\chi^2 = 10.1^{**}$). So far, therefore, Teilmann's observations could be confirmed.

It is a widely known fact that weight increases with increased age, and likewise the frequency of obesity (cf. Teilmann, Sjövall 1956, and others). In the controls the increase in obesity ratio was negligible with increasing age (see table 19); this could be due to a personal bias in estimations, and therefore is lacking in interest in this connection. On the other hand it can be stated that the excess obesity in the female paupers was confined entirely to the ages over 50; in the younger women

TABLE 19. *Obesity among women at different ages.*

Age	Paupers			Controls		
	No. ex- amined	Cases of obesity		No. ex- amined	Cases of obesity	
		No.	%		No.	%
16-50	93	11	11.8	79	10	12.7
50-60	96	31	32.3	73	12	16.4
60-	143	41	28.7	161	23	14.3

the number of cases of obesity was not higher in the paupers than in the controls. It was particularly among single women on relief without dependent children that obesity was frequent (see table III).

It is known that obesity is more common among women than in men (cf. Hatlehol 1941, Perman 1952, Sjövall 1952, 1954, Nordlander 1953, Frisk *et al.* 1957, and others). In the control material there were also somewhat more cases of obesity among the women than in the men; the difference was however, not significant. Among the paupers there was considerably more obesity in women than in men ($\chi^2_c = 9.07^{**}$). This was entirely due to the many cases of obesity among single women. In the married and cohabiting obesity was equally frequent in paupers of both sexes. Teilmann also found 6.5 per cent obesity in 432 male paupers, but on the other hand 24.4 per cent in 603 female paupers (the figures may have been too low since not all the cases received a physical examination).

Estimations of this kind are however very rough methods of reckoning the prevalence of obesity in a population. To obtain more objective bases of judgement analyses have been made of the relationship between height and weight, and average weights or ideal weights for different heights and ages have been estimated. Various methods are available for this (cf. Broman *et al.* 1942, Sjövall 1952, 1956, Nordlander 1953, and others). In this survey it was considered desirable to make a comparison with Teilmann's results and therefore the same method was used. In Teilmann's survey the relationship between height and weight was calculated with the guidance of diagrams constructed by an American life insurance survey from 1912. Here were given on the one hand ideal weights in each age-group, and on the other deviations in per cent from this ideal weight. This method has been used for many years by Rigshospitalets medical outpatient department

TABLE 20. *Prevalence of overweight and underweight.*

Different grades of overweight and underweight resp.	Men			Women		
	Paupers <i>n</i> = 108	Controls <i>n</i> = 72	χ^2_c	Paupers <i>n</i> = 264	Controls <i>n</i> = 112	χ^2_c
Over 5 % underweight	26.9	13.9	3.55	17.4	20.5	—
5 % under to 5 % over the ideal weight . .	34.3	30.5	—	18.9	17.8	—
5–20 % overweight . .	14.8	31.9	6.49*	22.4	34.8	5.72*
20–30 % overweight . .	13.0	9.7	—	15.9	11.6	—
Over 30 % overweight	11.1	13.9	—	25.4	15.2	4.15*
χ^2 ; d. f. = 4	9.99*			24.9***		

in Copenhagen and also in the health enquiries made by the Committee on Hygiene in the Danish Medical Association (Trier 1950). Swedish research workers (Sjövall 1952, Nordlander 1953, and others) have criticised these American diagrams and weight tables and pointed out, among other things, that the different weight tables differ from each other. In this survey, however, the most interesting factors have not been the number of persons who deviated from the ideal weight, but what differences in this respect could be demonstrated between the different groups. It is then probably of little importance whether, for instance, somewhat different values for the ideal weight might have been more correct for Swedish conditions.

Since the number of persons receiving a physical examination differed in the two samples, more of the paupers than the controls have been weighed and measured. This is a troublesome source of error. It is apparent from table 14 that the healthy and sick paupers were examined about equally often, while the sick controls were examined far more often than the healthy. It may therefore be assumed that also persons with obesity received a physical examination relatively often, and that the number of persons who were overweight therefore should be higher among those who received a physical examination than among those who did not. The obesity frequency for the controls should therefore be too high rather than too low. None the less, marked overweight was far more frequent in female paupers than in the female controls (see table 20). In women 25 per cent of the paupers and only 15 per cent of the controls were more than 30 per cent overweight. In accordance with the above argument the real difference was presumably still larger. Among the controls there were instead more persons with mode-

rate overweight than in the pauper material. Cases of underweight were about equally numerous in both samples.

Among the men, on the other hand, no differences in the number of grossly overweight cases could be demonstrated. Instead underweight persons were over-represented among the paupers (27 per cent as compared with 14 per cent in the controls). The difference was, however, not quite significant ($P=0.059$). Also among the men persons with a moderate degree of overweight were over-represented in the control material.

Teilmann compared his material with two surveys of the general population, which were carried out by the same method. One of them was the Danish Medical Association health enquiry (Trier) mentioned above, the other an investigation of the female life insurance material carried out by the insurance company Hånd i Hånd (see further Teilmann, p. 48). Since a physical examination was not made in all cases in Teilmann's survey either, both the maximum and minimum values were calculated for the number of overweight persons. By maximum values was meant the number of persons who were overweight of those who had been weighed and measured. It was assumed, namely, as here, that the cases of obesity were over-represented among those who received a physical examination. Minimum values were obtained by distributing these cases of overweight over the total number of persons, on the assumption that there were no cases of obesity at all among those who had not been weighed and measured. The correct ratio must lie between these maximum and minimum values, and, Teilmann argued, from the knowledge one had of the material it could be assumed that it lay nearer the maximum than the minimum figure.

These calculations have been repeated in the present material (see table 21). Here Teilmann's survey only applies to persons aged 40 and over. The analysis confirms, on the whole, the result reported already. No calculations of significance could be undertaken. However the minimum values for cases of overweight among the Swedish and Danish female paupers was higher than the estimated maximum values for such cases in the samples of the general population. For the men no such differences could be demonstrated. On the contrary in the present survey the minimum value for underweight male paupers was higher than the maximum value for underweight male controls.

Sjövall (1956), in a survey in Örebro County, has used a table of the relationship between height and weight drawn up by the Metropolitan Life Insurance Company. It is of later date than the table Teil-

TABLE 21. *Overweight and underweight in the various materials in per cent.*

Material	No. of cases	More than 30 % overweight		More than 20 % overweight		More than 5 % underweight	
		Max.	Min.	Max.	Min.	Max.	Min.
<i>Men</i>							
Paupers	166	11	7	24	16	27	18
Controls	152	14	6	24	11	14	6
Teilmann	332	19	8	29	12	—	—
Trier	2000	7		20			
<i>Women</i>							
Paupers	332	25	20	41	33	17	14
Controls	313	15	5	27	9	21	7
Teilmann	480	51	24	63	30	—	—
Trier	744	15		28			
Hånd i Hånd . . .	200	5		16			

mann followed, but constructed in the same way. If his material is standardized to the same age distribution as in the relief group, 20 per cent or more overweight is found in 15.9 per cent of the men and 24.9 per cent of the women. Direct comparison with the maximum and minimum values in table 21 cannot be made since there is given the number of cases with more than 20 per cent overweight. Broadly it may be said that the controls do not seem to show any certain divergence; the values for the general population in Örebro County lay between the maximum and minimum values for the controls. The minimum figure for male paupers lay on about the same level as the general population. On the other hand the minimum value for the female paupers was far higher than the figure estimated here for a general population of the same age; the same applied to Teilmann's value.

In the Health Survey in Stockholm, where a considerable number of cases of obesity were also observed, overweight was judged in another way; comparisons therefore are not possible.

The survey results recorded here contain certain weaknesses. They indicate, however, that obesity is relatively frequent among elderly female paupers. This is perhaps, as Teilmann says, contrary to the popular idea of obesity as a sign of prosperity, but it is actually quite natural. Obesity reduces ability to work, and a high degree of obesity hinders work very greatly. It must be regarded as a chronic pathologic

condition. It is only to be expected that this condition, like so many other chronic illnesses, would be over-represented in the pauper material. The interesting question is, however, whether the relief situation possibly can contribute to the development of this illness or to its deterioration. In the treatment of obesity a low caloric but varied diet is required, in which some of the cheaper foods (bread, potatoes etc.) may only be included in limited quantities. This question should be investigated separately.

The fact that obesity is not over-represented among the male paupers indicates that obesity does not cause disability to the same extent for men. The large number of underweight male paupers is probably mainly due to the fact that there are far more sick persons among them than in the control material. Undernourishment may, however, even be related to an inadequate intake of calories. Men, particularly if they are working, need more calories than women. Even this question requires to be investigated further.

Diseases of the Blood and Blood-forming Organs

The most common disease of the blood is secondary anemia of varying etiology. The number of such cases which occur in the material cannot be given, since blood tests were only made in a small number of cases. The large amount of information on secondary anemia which was obtained at interviews and from various sources was too unsystematic to be made the basis for frequency estimations.

Of other blood diseases two cases of pernicious anemia were found among paupers, both women. Among the controls there was one woman who was reported to have suffered from pernicious anemia, a diagnosis which was later changed. At the interview she was in good health. There were also two cases of splenomegaly, one among the paupers and one among the controls. No other cases of disease of the blood-forming organs or the blood were observed. No information was obtained on passed illnesses of this type. Thus there is nothing which suggests that such illnesses were over-represented in the pauper material, and neither Teilmann nor Rülcker found such an over-representation.

Diseases of the Nervous System

As has been pointed out earlier, cases of invalidity resulting from healed processes have not been counted as present illness. In diseases of the nervous system such a distinction gives rise to certain difficulties, since it is sometimes difficult to decide if the process has terminated or

not. Here, therefore, all disabled cases have been included, although in some of them it was probably only a question of sequelae. These cases are also recorded later under the heading invalidity (see table 26, p. 230). Only cases with symptoms of neural lesions as paralysis, changes of sensibility and so on have been included. Dementia and other mental changes were recorded in the previous chapter.

The figures concerning diseases of the central nervous system should be rather reliable, since they are severe and characteristic, and detailed information on the various cases was obtained from colleagues and hospitals.

Among paupers there were 10 and among the controls 6 cases of complications of cerebral hemorrhage and similar conditions (diseases nos. 330–332), which represents frequencies of 2.0 and 1.3 per cent respectively. No information on the prevalence of such conditions in Sweden has been found. In the Health Survey in Stockholm no such cases were observed. This may have been because these persons had difficulty in attending at the investigation premises, and therefore disappeared from the material. If cases are included which, according to confirmed information, have suffered from cerebral hemorrhage and similar conditions, although they showed no pathologic symptoms at the medical examination, the figures for the paupers were 4.8 per cent and for the controls 2.8 per cent, i.e. the difference was not significant. There was no difference worth mentioning between the sexes.

In the male paupers there were five and in the female paupers four cases of various organic diseases of the central nervous system as multiple sclerosis, paralysis agitans, syringomyelia etc. (see table II), i.e. 3.0 and 1.2 per cent respectively. In the control material there was only one case of multiple sclerosis in one of the women. If all cases of such diseases (i.e. nos. 345, 350, 351, 352, 355, 356, 357 in the nomenclature) are combined, a frequency is obtained of 1.8 per cent for the paupers and 0.2 per cent for the controls ($\chi^2 = 4.48^*$).

These diseases are all infrequent. Multiple sclerosis is probably the most common; in Scandinavia it is stated to be the most common disease of the nervous system after senile changes and vascular lesions (Grönroft 1956). The figures obtained are rather varied, usually given as about one per thousand (cf. Sällström's report of the literature 1942, Fremming 1947, Müller 1949, Grönroft 1956, Hyllested 1956, Sutherland 1956, and others). The other diseases are far less frequent. In Sweden

Nilssonne (1952, 1955) estimated the number of spastics as about 4000–5000, that is, about 0.07 per cent, but states that this figure may be low on account of defects in the registration (cf. Sjögren & Larsson 1957). It is meaningless to compare the present small samples with the situation in the general population concerning these diseases. The total frequency of these diseases in the general population is, however, not definitely known. In the Health Survey in Stockholm four such cases were found among the men. After standardization to the same age distribution as in the relief group, the frequency would be 0.2 per cent, which was lower than among the paupers (difference $2.8 \pm 1.4^*$). Four cases also occurred among the women, corresponding to 0.4 per cent after standardization, which did not deviate significantly from the paupers.

Thus comparison with the control cases and the Health Survey both suggest an excess prevalence of this type of disabling disease of the nervous system, anyway in male paupers.

A few cases of sciatica were found in both samples. Sciatica is, of course, not a single disease but a symptom. In this survey no attempt was made to distinguish between displacement of the intervertebral disc (disease no. 735) and other cases of sciatica (no. 363). Among the men sciatica occurred in 1.2 per cent of the paupers and 1.3 per cent of the controls, among the women in 1.5 and 1.9 per cent respectively. This does not diverge from what Rülcker and Teilmann found. In the Health Survey sciatica (i.e. diseases nos. 363 and 735) occurred in 0.7 per cent of the men and 0.3 per cent of the women, which, after standardization to the same age distribution, was not found to diverge from the samples either.

In the Danish sickness survey sciatica occurred in the age-group 40–59 in both sexes in about 1 per cent of the cases, which is only slightly lower than in the present sample.

Information on previous attacks of sciatica was often obtained (in the paupers in 11.4 per cent of the men and 6.9 per cent of the women, in the controls in 9.2 and 6.4 per cent respectively). The classification has followed the diagnoses of the attending physicians; it is then possible that these would not always have stood up to a critical test, if such could have been carried out. The examinee might also have overlooked periods of trivial illness of this type. Sometimes it is rather difficult to distinguish between sciatica, lumbago, insufficiency symptoms of the back, rheumatic affections etc. The frequencies are therefore probably rather unreliable. In the careful interviews by Hult (1954) concerning

the frequency of sciatica in various groups of workers, the figures for such symptoms occurring at some time were throughout considerably higher.

There was no difference worth mentioning between the samples in the anamnesis of what is here called sciatica. Thus illnesses of this type do not seem to have any great significance for pauperization.

Of other peripheral nerve diseases, i.e. neuralgia and neuritis etc. (nos. 360–362, and nos. 364–369) no cases were found among male paupers. Among female paupers there were eight cases, i.e. 2.4 per cent. Among the controls the corresponding figures were 0.7 and 1.3 per cent. Rülcker did not report any cases of this type and Teilmann did not distinguish them from other diseases of the nervous system. In the Health Survey in Stockholm there were five cases among men and six among women, which, after standardization to the same age distribution for both sexes corresponds to 0.4 per cent. It did not deviate for the male paupers to any great extent, the female paupers, on the other hand, lay at a considerably higher level (difference $2.0 \pm 0.9^*$). Since the controls showed rather high figures, however, no conclusions could be drawn.

Data which were available on previous attacks of illnesses of this type may probably be described as unreliable.

Migraine is sometimes an uncertain diagnosis which must be mainly based on the patients' own information. Only a few of the examinees declared that they still suffered from migraine (in the paupers 0.6 per cent of the men and 2.1 per cent of the women, among the controls 0 and 1.0 per cent respectively). Many women, more paupers (6.6 per cent) than controls (2.9 per cent), declared, on the other hand, that they had suffered from migraine previously ($\chi^2_c = 4.17^*$). The result, with regard to the nature of the information, must be treated with caution.

In the Danish sickness survey the number of cases described as "headache, migraine" in the age-group 40–59 was 0.7 per cent of the men and 2.2 per cent of the women. This agreed well with the results in this survey; Teilmann recorded the same figures. The Health Survey in Stockholm recorded about the same results after standardization for age (0.6 per cent among men and 1.9 per cent among women). It is well known that migraine is more common in women than in men.

The whole group of diseases of the nervous system, including migraine, was larger among paupers (men 6.6 per cent, women 9.0 per cent) than among the controls (men 3.3 per cent, women 5.7 per cent). If previous cases of the diseases are also included the difference would be even larger. Among the men 21.7 per cent of the paupers and 13.2 per cent of the controls had suffered from organic diseases of the nervous system ($\chi^2_c = 3.42$). Among women the corresponding rates were 25.6 and 14.7 per cent respectively ($\chi^2_c = 11.2^{***}$). Despite the uncertainty which, in some respects, was inherent in the material recorded, it is probable that paupers were more subject to different types of diseases of the nervous system than the controls. Nearly $\frac{1}{4}$ of them appear to have suffered from such illnesses. The difference between the sexes was mainly due to the many cases of migraine among women. In some of the cases prolonged invalidity had occurred; in others, particularly regarding peripheral nerve diseases as sciatica, neuralgia and neuritis, the condition had often passed over and had probably been of rather secondary importance in the development of pauperism.

Diseases of the Eye

Conjunctivitis, blepharitis, hordeolum, and refractive errors have not been included among diseases of the eye. Anamnestic data concerning such diseases may be assumed to be extremely incomplete. At the medical examination mild cases were probably sometimes overlooked. They are of no great importance in this connection. Anamnestic data for iritis, keratitis, choroiditis, and other inflammatory diseases of the eye (nos. 373–379) are probably also somewhat incomplete; on the other hand active cases of illness of this type could hardly have been overlooked. The same probably applies to corneal ulcer and corneal opacity (nos. 381 and 382), while data on strabismus, cataract, ablatio retinae and glaucoma (nos. 384–387) may be assumed to have been fairly complete and reliable, perhaps with the exception of strabismus in childhood, which has later disappeared.

During examination of the patients isolated cases of iritis, keratitis, choroiditis and other inflammations of the eye were observed, and also cases of corneal ulcer, strabismus, cataract, ablatio retinae, glaucoma etc. (nos. 373–379 and 381–388 in the nomenclature). Among men such cases occurred in 8.4 per cent of the paupers and 3.3 per cent of the controls ($\chi^2_c = 2.88$). Among the women the corresponding figures were 4.5 and 1.9 per cent respectively. Among the female paupers three

cases of eye disease occurred which, according to the nomenclature, should be classified under other headings (one case each of neoplasm of the eye, retinitis pigmentosa and hereditary syphilis with eye symptoms). If these cases were also included, there were 5.4 per cent of the female paupers who suffered from eye disease ($\chi^2_c = 4.59^*$). χ^2_s for both sexes was $= 7.47^*$; d.f. = 2.

Comparisons with other surveys are difficult and are dependent on which diseases are included in the various surveys. If we commence from the diseases recorded in this survey, Rülcker found somewhat lower frequencies (1.6 per cent of the men and 1.1 per cent of the women), presumably due to differences in the composition of the two materials. Comparison with Teilmann's material was more difficult since some diagnoses were not specified in his report. Cataract and glaucoma, however, showed the same low frequencies as here. The total number of cases of eye diseases was lower than in this survey, however not significantly so (3.9 per cent in men and 3.0 per cent in women). According to the sickness survey the frequency of eye disease in the ages 40–59 in the Danish general population was 1.3 per cent for men, that is lower than in Teilmann's material ($\chi^2_c = 20.7^{***}$ calculated according to formula 9), but about the same for women (2.8 per cent). This would suggest an increase in the number of diseases of the eye in the male paupers. In the Health Survey in Stockholm the above mentioned diseases occurred in 0.8 per cent of the men and 1.7 per cent of the women (after standardization to the same age distribution). This was lower than among the paupers (difference for men $7.6 \pm 2.2^{***}$, for women, if the three cases from other groups of disease already mentioned are left out, $2.8 \pm 1.3^*$). This was even lower than in the controls, the difference, however, might have been fortuitous.

On the whole it seems as if the extent of eye diseases was somewhat increased among paupers. On account of the hazards of comparisons with other surveys, however, no definite statement can be made. Only an analysis of each disease separately could be reliable; the figures were too small, however, for such an analysis to be worth while.

Table II also shows how many persons were blind. Total blindness occurred in five of the male paupers as a result of atrophy of the optic nerve, ablatio retinae or accidents. Among the other groups there were no cases of blindness. On the other hand in some cases, all of which were examined by a specialist, vision was so impaired that the patients could be described as almost blind (visual acuity in the best

eye less than $\frac{1}{60}$, uncertainty in counting fingers, only able to differentiate light and darkness etc.). All these cases could probably be classified under blindness in the nomenclature (no. 389). Altogether, therefore, blindness occurred among men in 4.8 per cent of the paupers and 0.7 per cent of the controls, and in women in 2.7 and 0.9 per cent respectively. If men and women were taken together, χ^2_c was = 6.20*. In the Health Survey in Stockholm there were 22 blind persons, which, after standardization for age corresponded to 1.2 per cent for men and 0.5 per cent for women. The difference from the paupers was for men $3.6 \pm 1.7^*$, for women $2.2 \pm 0.9^*$. Comparisons are, however, rather uncertain, since one cannot be quite sure that identical methods of estimation were used.

Diseases of the Ear

At the medical examination two cases of otitis were found in the male and four in the female paupers, and one in the male and four in the female controls. Teilmann also found low frequencies (0.9 per cent in the men and 0.5 per cent in the women), and Rülcker still lower (no cases in the men and 0.2 per cent in the women). Also in the Health Survey only isolated cases were observed. It was throughout, therefore, a question of small figures, which, of course, is to be expected in a survey concerning the prevalence of illness.

In the present survey information was also recorded on the frequency of otitis and other inflammatory diseases of the ear in the anamnesis. Such information must of course be unreliable. Particularly mild cases of otitis may easily be forgotten at the interview. Altogether such diseases were reported to have occurred in 8.4 per cent of the male and 7.8 per cent of the female paupers, and also in 3.9 per cent of the male and 5.4 per cent of the female controls. Thus there were no significant differences between the samples, but the frequencies may be regarded as minimum figures.

An isolated case of Ménière's disease was found. One such case occurred in the Health Survey in Stockholm also.

In many cases there was impaired hearing following healed inflammation of the ears or from other causes. In some cases the reason for impaired hearing was not known. Most of the persons examined were not interested in a special examination to investigate this. There were two known cases of otosclerosis. There was impaired hearing in 10.8 per cent of the male paupers and 7.2 per cent of the male controls, among the women the figures were 7.5 and 4.2 per cent respectively;

the differences were not significant. Complete deafness was present, however, in seven of the paupers but not in any of the controls ($\chi^2_c = 5.13^*$).

Comparisons with other surveys are hazardous; the number of cases must be dependant on how impaired hearing is defined. Teilmann found impaired hearing in 2.6 per cent of the men and 3.3 per cent of the women, that is, far less than in the present survey. This may be due to the inclusion of milder cases in the present survey. In the Danish sickness survey no distinction was made between different diseases of the ear. The figures given for ear disease were far lower than those obtained in the present material. In the Health Survey the number of cases of impaired hearing, after standardization to the same age distribution as among the paupers, was given as 2.8 per cent in men and 1.9 per cent in women. In American surveys about 1.5 per cent of the population has been found to suffer from impaired hearing of such an extent that it involved social difficulties. Some English surveys have included even milder cases and found far higher figures. In Denmark the number of persons with impaired hearing has been estimated at 6.0 per cent, and in 1.9 per cent it was a question of severe changes (Bentzen & Jernes 1955). In surveys of school children even higher figures have been observed (see e.g. Falbe-Hansen 1954). The number of cases of impaired hearing also increases sharply with age (see Statens offentliga utredningar 1954).

Comparison with the situation among paupers can obviously not be made, since the bases of judgement have been different. This shows the difficulty in comparing the results in different sickness surveys if no exact methods are used, or if it is impossible to be sure that the same bases of judgement are followed as in a control material. The excess of complete deafness points, however, to increased morbidity for diseases of the ear among paupers.

Diseases of the Heart

Most of the cases of heart disease in the material had previously been investigated in a hospital or by a specialist, often repeatedly and with the help of electrocardiography, roentgenography, etc. In these cases the diagnosis may be denoted as very reliable. In some cases there was a history of heart symptoms and sometimes also information was obtained from other physicians which seemed to confirm the diagnosis, without, however, being quite conclusive. In some cases the condition was first diagnosed at the medical examination. In such cases an at-

tempt was always made to obtain a complementary investigation of the heart at a hospital outpatient department; but this could not always be achieved. In the analysis, therefore, certain and uncertain cases of heart disease have been distinguished as a precautionary measure.

No division of the material into different chronic heart diseases has been made. No cases of acute endocarditis, myocarditis or pericarditis were observed. On the other hand some persons declared that they had previously suffered from rheumatic fever or chorea. This information has generally been confirmed by extracts from case-papers, but there could naturally have been other cases which were not discovered at the interviews. No analysis has been made of functional heart disease, since it was thought that information on this would not be reliable. Present cases of flimmer, heart block etc. could all be referred to chronic myocarditis or arteriosclerotic heart disease and have therefore not been recorded separately. The same applies to information on edema and other symptoms of cardiac insufficiency.

Among paupers 3.6 per cent of the men and 6.3 per cent of the women declared that they had had rheumatic fever. Among the controls the corresponding figures were 1.3 and 4.8 per cent respectively. Thus in both samples it was more frequent among women, which is a widely known phenomenon (cf. Perman 1952, and others). Corresponding information for the general population is only found exceptionally. According to Edström (1944) 2.4 per cent of the population suffer from, or have suffered from rheumatic fever. Whether or not the term is conceived in the same way as in this survey is, however, uncertain. The age distribution is also divergent and thus no real comparison can be made. In most other surveys the incidence of illness is given instead, and not the prevalence (see Kellgren *et al.* 1953, and others).

A few cases of rheumatic chorea were also reported as having occurred (eight among the paupers and two in the controls). Two said they had had both rheumatic fever and chorea. Altogether rheumatic affections of this type were reported to have occurred in the paupers in 4.8 per cent of the men and 8.1 per cent of the women and in the controls in 1.3 per cent of the men and 4.8 per cent of the women. With both sexes taken together χ^2_c was = 4.71*.

Heart disease occurred in men in 31.9 per cent of the paupers and 14.5 per cent of the controls ($\chi^2_c = 12.9^{***}$). In five of the paupers and six of the controls the diagnosis was not considered to have been fully verified. If these cases are excluded the frequencies would instead be

28.9 and 10.5 per cent respectively. The difference was significant even if only confirmed cases were included in the pauper material but in the control material uncertain cases were also included ($\chi^2_c = 8.82^{**}$); the situation was the same throughout the various age-groups (see table III).

One case of congenital malformation of the heart was found in a woman on relief and one among the controls (no. 754 in the nomenclature). If these two cases are included heart disease was present in 23.2 per cent of the female paupers and 18.2 per cent of the controls ($\chi^2_c = 2.99$). If the uncertain cases, 11 and 13 respectively, are not included, a frequency of 19.9 per cent is obtained for the paupers and 14.1 per cent for the controls. The situation differed, however, in different age-groups. Among women of 60 and over heart disease was equally frequent among the paupers (27.3 per cent) as among the controls (27.7 per cent). Among women who had not reached 60 years of age, on the other hand, heart disease was far more common among the paupers (20.1 per cent) than among the controls (8.6 per cent). $\chi^2_c = 7.82^{**}$.

In the control material the differences between the sexes was insignificant. Since heart disease in both samples was, as expected, far more frequent in the old than in the young ages, and also more frequent among single persons than in the married or cohabiting, consideration must be paid to age and family type in comparison of the sexes. The difference between male and female paupers in the prevalence of heart disease was not particularly large except for persons over 60 years of age (cf. table III). No less than 19 of 36 single men of 60 or over had heart disease; and 38 of 130 single women ($\chi^2_c = 5.93^*$). Among married and cohabiting persons 18 of 34 men of 60 or over had heart disease, and only 1 of 11 women. ($\chi^2_c = 4.84^*$). Thus for the oldest ages in the material the difference was fairly large ($\chi^2_c = 10.8^{**}$; d.f. = 2). The excess of heart disease among the male paupers as compared with female paupers was thus due above all to cardiosclerotic changes. The same phenomenon has appeared in surveys of the general population (see Lilianfeld 1957). It is also widely known that valvular disease, which usually begins in youth, is more frequent among women than in men (see Göhle 1950, White 1951, Perman 1956, and others).

Rülcker, in his survey of paupers in Stockholm, found heart disease in only 4.4 per cent of men and 3.7 per cent of women, although in his material even persons above pensionable age were included. The investigation of the cases was, however, less detailed. The present survey also concerns a selection of long-term paupers.

Teilmann found about 8 per cent with heart disease, which agrees well with Trier's health survey of employees of large firms and public services in Copenhagen (about 7 per cent). In the present survey even the controls had far higher figures. It may be pointed out, however, that Trier's material admittedly covered persons over the age of 40, but most of them were between 40 and 49. The controls in the present survey had an average age of about 50 at the time of selection, but at the time of the medical examination it was on the average about 3 years older (cf. table 6, p. 66). About $\frac{3}{4}$ were 50 or over at the time of the medical examination, and fully half of them were 60 or more. It thus undoubtedly consisted of considerably more old people than Trier's material; it was therefore quite natural that the number of cases of heart disease was very much higher. The surprisingly low number of cases of heart disease in Teilmann's survey may perhaps be related to the fact that some severe cases of heart disease received disablement pensions, and would thus not be included in his material. The present survey, on the other hand, included persons with disablement pensions.

Even other surveys concerning the prevalence of heart disease in the general population have, however, given lower frequencies than those for the controls. Biörck (1950) has estimated the number of cases of cardiovascular diseases in Sweden as about 3.5 per cent, of which more than half were of pensionable age. American statistics give a figure of 2 per cent (White 1951); even higher figures have, however, been obtained (Biörck 1950). These frequency figures are, however, difficult to compare with those presented here. The age distribution in the samples was quite different. The groups of diseases have also been differently defined; Biörck's calculations included also some diseases of the vascular system.

In the Health Survey in Stockholm cases of valvular disease, cardiosclerosis and myocarditis (i.e. nos. 410–422 in the nomenclature) were observed in 5.6 per cent of men and 5.4 per cent of women. The significance of the age factor is shown by the fact that, after standardization to the same age distribution as in the control group, the figures increased to 9.5 per cent for men and 8.3 per cent for women. The frequencies were thus considerably lower than for the paupers and also lower than for the controls (the difference for men was 4.9 ± 3.2 , for women $9.6 \pm 2.4^{***}$). In this comparison the aforementioned case of congenital malformation in the female paupers was not included. If the uncertain cases were not included, however, the differences were far smaller. Various explanations are possible for the high frequency

of heart disease in the control sample. Firstly, it may be related to an uneven distribution of heart disease in society. Cardiosclerosis admittedly predominates in the higher social strata (cf. table 1) but myocarditis predominates in the lower social strata, and it is possible that the latter group weighed more heavily. Secondly it is possible that the boundary between health and illness has been drawn in different ways; this would mean that, in the present survey, less severe cases have been included than in the Health Survey. The large non-examined frequency in the Health Survey may also play a part.

In summing up, attention may thus be drawn to the great excess morbidity for heart disease in male paupers in all ages and for female paupers under 60.

Hypertensive Disease

The blood pressure was determined in only 50 per cent of the male and 66 per cent of the female paupers, and in still fewer of the controls: 27 per cent of the men and 23 per cent of the women. It was a hazardous process to draw conclusions on the frequency of hypertension in the several samples on the basis of such incomplete material. Direct comparison between the samples could not be made, since the selection of those examined was not made at random. Persons who knew, or believed that they suffered from hypertension were anxious to have their blood pressure checked, while those who considered that they were healthy thought it unnecessary to have their blood pressure measured.

Teilmann was faced with the same source of error in his survey of the Danish paupers. He only determined the blood pressure of 45 per cent of the men and 48 per cent of the women on relief. He succeeded, however, in comparing his results with those Trier (1950) had obtained in a health survey of the general population. He did this by estimating both the maximum and minimum frequencies for hypertension in his material. Since he could be certain that cases of hypertension, for reasons already given, were over-represented among those whose blood pressure was determined, the hypertension frequency obtained for this group must be too high. This figure Teilmann denoted as the maximum value. If all the cases whose blood pressure, on measurement, was found to be high, were distributed over the whole material, irrespective of whether the blood pressure had been determined or not, a frequency will be obtained which must be too low: there must

be some cases of hypertension even among those whose blood pressure was not measured. Teilmann calls this the minimum value. He was able to demonstrate that, when the age factor is constant, there was a far higher frequency of hypertension among female paupers than in the general population, while it was uncertain if there was an increase in the frequency of hypertension in the male paupers.

Despite the scarcity of material, an attempt has been made to judge the relative frequency of hypertension in the paupers according to the method demonstrated by Teilmann.

Opinions differ as to what shall be described as hypertension (cf. Morsell 1951, Helander 1956, and others). In order that a comparison may be made with Teilmann's result hypertension has been defined in this survey in the same way as in his work.

Teilmann considered, in accordance with Warburg (1943), that blood pressure is high in the following cases.

"1. diastolic blood pressure = 100 mm Hg or over.

2 (a) Men under 60: systolic blood pressure 150 mm Hg or over.

(b) Men of 60 or over: systolic blood pressure 160 mm Hg or over.

(c) Women under 50: systolic blood pressure 150 mm Hg or over.

(d) Women of 50 or over: systolic blood pressure 160 mm Hg or over."

Teilmann pointed out that Warburg considered that blood pressure was raised when it was above the level mentioned, but Teilmann himself, in order to be able to make comparisons with Trier's material, included the boundary values as high blood pressure.

Blood pressure was measured towards the end of the medical examination, when the patient had been sitting calmly and chatting for a while, and it was usually taken when the patient was lying down. It was determined by auscultation and measured with a sphygmomanometer. It was thus a rather rough and summary estimation.

The blood pressure values have been recorded in table 22. The number of persons with high blood pressure rose steeply with age, as was expected.

The maximum and minimum values obtained in accordance with the aforementioned method, and also Teilmann's results, are given in table 23. From information from other sources (e.g. physicians who had recently attended the persons in question) it was apparent that some of those whose blood pressure was not determined probably had hypertension also. If these cases are added to the minimum frequencies a value is obtained which in the table is called the "probable value". These figures, however, were presumably somewhat too low also. The maximum values differed little from each other in the two samples.

TABLE 22. *The blood pressure in the various age groups (determined at the medical examination).*

Blood pressure	Paupers				Controls			
	16-40	40-50	50-60	60 and over	16-40	40-50	50-60	60 and over
<i>Men</i>								
Systolic								
-139	3	4	6	5	1	1	2	3
140-159	1	1	3	7	1	—	4	5
160-179	—	4	8	13	1	—	2	8
180-199	—	1	4	6	—	—	2	9
200-219	—	—	4	6	—	—	2	4
220-239	—	1	—	2	—	—	—	—
240-	—	—	1	3	—	—	—	—
Diastolic								
- 79	2	2	4	2	1	1	3	4
80- 99	2	5	10	16	2	—	3	10
100-119	—	3	8	20	—	—	6	14
120-139	—	1	4	3	—	—	—	—
140-	—	—	—	1	—	—	—	1
<i>Women</i>								
Systolic								
-139	10	4	4	—	2	—	2	2
140-159	2	6	8	5	—	3	4	4
160-179	2	7	16	19	—	3	8	8
180-199	—	5	21	22	—	—	—	16
200-219	1	3	14	25	—	—	3	6
220-239	—	1	2	14	—	—	1	5
240-	—	1	4	24	—	1	2	8
Diastolic								
- 79	4	3	1	3	—	2	3	4
80- 99	6	9	22	10	2	2	5	6
100-119	5	9	30	53	—	2	8	25
120-139	—	3	12	27	—	—	3	10
140-	—	3	4	16	—	1	1	4

Both the minimum values and the most probable values were considerably higher for the paupers than for the controls. Since this might have been due to fewer controls receiving a physical examination, no conclusions could, however, be drawn. Comparison with other surveys

TABLE 23. *Prevalence of hypertension in the present survey and according to Teilmann (estimated in different ways).*

Material	No. of cases where blood pressure was determined	whereof hypertension on determination of blood pressure in % (maximum values)	Total no. of cases	whereof hypertension on determination of blood pressure in % (maximum values)	whereof hypertension on determination of blood pressure or according to outside information (probable values)	χ^2_c
<i>Men</i>						
Paupers	83	72.3	166	36.1	41.6	6.18*
Controls	45	73.3	152	21.7	27.6	
<i>Women</i>						
Paupers	220	85.5	332	56.6	63.3	46.4***
Controls	78	78.2	313	19.5	36.1	
<i>Teilmann</i>						
Men	193	39.4	432	17.6	—	
Women	288	58.7	603	28.0	—	

was therefore necessary, but met with considerable difficulties. Attempts have, however, been made with some Scandinavian surveys.

There were more cases of hypertension in the paupers in Stockholm than in Teilmann's Danish relief material. The minimum values in the present material were almost on the same level as the maximum values in Teilmann's survey. Even the probable values were somewhat higher than Teilmann's maximum value.

Since the age distribution varies somewhat in the two materials, the hypertension frequencies were investigated for the different ages (table 24). The comparison covered the maximum values and, as a precautionary measure, only severe cases of hypertension were included. Whichever age-group was examined and irrespective of whether the comparison referred to the frequencies of systolic or diastolic pressure, there were considerably more cases of hypertension in the present survey than in Teilmann's material. The differences were so great that they can hardly have been entirely due to possible differences in examination technique. They may conceivably be related to the fact that pensioners, who were not included in Teilmann's material, were rather numerous in the present survey (see page 62).

Since Teilmann found more cases of hypertension in the paupers

TABLE 24. *Number of cases of hypertension among the paupers in the various age groups (estimated by measuring at the medical examination).*

Age	Author's own material			Teilmann's material		
	No. of cases	whereof over 200 mm Hg systolic in %	whereof over 120 mm Hg diastolic in %	No. of cases	whereof over 200 mm Hg systolic in %	whereof over 120 mm Hg diastolic in %
<i>Men</i>						
40-50	11	(9)	(9)	47	4	4
50-60	26	19	15	95	3	1
60-	42	26	10	19	(11)	(5)
<i>Women</i>						
40-50	27	19	22	79	8	4
50-60	69	29	23	168	22	14
60-	109	58	39	12	(17)	—

than in a sample of the general population investigated by Trier in the same way, the comparison with his material suggests that there must also be far more cases of hypertension in paupers in Stockholm than in the general population.

The Health Survey 1954 could not give a clear picture of the frequency of hypertension in the population of Stockholm. The values obtained might perhaps be described as approximate figures. Direct comparison with the sample has not been possible, since in the Health Survey a distinction is made between raised blood pressure with and without heart affection. In the latter group were included all cases which did not show any cardiac symptoms, but had at least 170 mm Hg systolic and 100 mm Hg diastolic blood pressure. In the first group most of the cases had raised blood pressure. A few had previously had raised blood pressure but had normal blood pressure values at the medical examination. These two groups were summated and also standardized to the same age distribution as in the pauper material in the present survey. The hypertension figures obtained were 14.6 per cent for men and 32.4 per cent for women. Among the paupers at least 25.3 per cent of the men and 47.6 per cent of the women had 170 mm Hg in systolic pressure or more (=minimum values according to the definition page 200). If an estimation is made instead of the

number who have at least 100 mm Hg in diastolic pressure, minimum figures of 24.1 per cent for men and 48.5 per cent for women are obtained. In both cases the minimum figures greatly exceeded the frequency of hypertension in the Health Survey. This must be due to a large increase in the number of cases of hypertension in the male and female paupers. The corresponding minimum figures for the controls, on the other hand, were lower than the frequency of hypertension in the Health Survey; no certain deviation from the Health Survey could therefore be demonstrated for the controls.

In Bergen Bøe *et al.* (1957) measured the blood pressure in nearly 68,000 persons. If the age distribution in this material was the same as in the present sample of paupers in Stockholm, 24.1 per cent of the men and 34.3 per cent of the women would have had a systolic blood pressure of 170 mm or over. For men this would lie at about the same level as in the aforementioned minimum value for paupers, for the women considerably lower. Since the number of paupers with raised blood pressure is probably far higher than what these minimum figures show, this comparison also points to an increased ratio of hypertension among paupers, particularly in the women.

Hypertension is more frequent among women than men (see Master *et al.* 1943, Björck & Blomquist 1949, Perman 1953, Lilienfeld 1957, and others). According to Bøe *et al.* (1957) blood pressure in women generally increases more rapidly with age than it does in men. It lies at a lower level in young women and rises to a higher level in the old age-groups. In both samples also, hypertension was more frequent among the women than the men, despite the somewhat more restricted criteria for hypertension for women (judged by what is here denoted as the probable value).

If consideration was paid to the different distribution in family types and ages of both sexes, single persons without children (see table III) presented hypertension frequencies in all age-groups which were higher for women than for men ($\chi^2_s = 16.0^{**}$; d.f. = 3). The difference between the male and female controls was small in the 16-60 age-groups. In the age-group over 60 it seems, however, that hypertension was again more frequent in women than men ($\chi^2_c = 3.79$).

The female paupers had a higher frequency of hypertension than the men also among married and cohabiting persons; the differences were, however, quite insignificant, and could easily be fortuitous. This was the case to an even greater extent among the controls.

To recapitulate, despite the shortcomings in the material in this section, an excess of hypertension in the paupers may be regarded as fairly certain. The increase was most marked for women, which Teilmann also observed.

Diseases of the Vascular System.

In table II vascular diseases have not been included, as it was presumed that information would be unreliable on these illnesses (e.g. arteriosclerosis, hemorrhoids). For the same reason diseases of the lymph nodes and channels were not included either.

Only isolated cases of arterial diseases (e.g. aneurysm, aortitis, endarteritis) were found. No difference was observed between the samples.

The diagnosis of varicose veins of the leg in borderline cases may be doubtful; only obvious cases are included here. Since judgement may vary, comparison with other surveys is hazardous. In the paupers varicose veins occurred in 5.4 per cent of the men and 11.7 per cent of the women, among the controls in 5.2 and 14.4 per cent respectively. In addition some had previously suffered from varicose veins, but had been treated. There was clearly no difference between the samples.

Rüleker found only isolated cases of varicose veins in his survey, probably because the illness was not mentioned in the medical certificates on which, to a great extent, he based his analysis. Teilmann found varicose veins in 5.8 per cent of the men and 11.4 per cent of the women, that is, to about the same extent as in the present material. In the preliminary report of the Danish sickness survey there appears the diagnosis group "varicosis, varicose ulcer, phlebitis". These conditions occurred in the age-group 40-59 in 1.6 per cent of the men and 3.2 per cent of the women. Teilmann's result thus deviated markedly from the general population. Comparisons are, however, hazardous. It is possible that the non-medical interviewers in the sickness survey only heard about the severe cases. In the Health Survey in Stockholm varicose veins also occurred frequently. After standardization to the same age distribution as in the samples the frequencies for men were 12.7 per cent, for women 21.1 per cent, that is considerably higher figures than in the present survey. This is probably due to the inclusion of mild cases. The situation further illustrates the difficulty of comparing different surveys in this field.

At the medical examination no cases of thrombosis were found. Among the paupers 1.8 per cent of the men and 8.4 per cent of the

women declared that they had had venous thrombosis of the lower extremities; in the controls the figures were 2.6 and 6.4 per cent respectively. The differences between the samples were thus small. Gjöres (1956) found in a random sample from three parishes in Stockholm that 2.2 per cent stated that they had had deep venous thrombosis. In addition there were a few suspected cases. No direct comparison with his material can, however, be made, since in the present samples it was not always possible to distinguish between superficial and deep thrombosis of the legs. According to Gjöres nearly all the surveys in this field show higher frequencies for women; $\frac{3}{4}$ of Gjöres' own material was composed of women, which also agrees with the figures given here.

Varicose ulcers were found among the paupers in 1.2 per cent of the men and 2.1 per cent of the women; in the controls there were none among the men and 2.7 per cent among the women. Some had had varicose ulcers of the legs previously; altogether the illness had occurred in the men in 1.2 per cent of the paupers and 0.7 per cent of the controls; in the women in 5.7 and 4.8 per cent respectively. The difference between the samples was thus insignificant. This illness also is usually far more frequent in women than in men (cf. Gilje 1951, and others).

Thus in none of these vascular diseases could any difference be demonstrated between the paupers and the controls. This is rather surprising. Varicose veins of the leg is a common illness, often accompanied by infiltration of the subcutaneous connective tissue, edema and reduced mobility, and might well have been expected to occur more frequently in paupers than in the controls. Prolonged periods of sick-leave are fairly common (see Santler & Wiedmann 1956, and others). The disabling effects of varicose ulcers are widely known (cf. bibliographic references in Gilje 1951). Gjöres (1956) also recorded disability, change in occupation, decreased income and disablement pensions regarding some of the patients who had deep venous thrombosis. Despite these factors the material reported here suggests that disability from these illnesses is neither so frequent nor so severe that it affects, to any great extent, the recruitment of the pauper population.

No marked differences in the extent of these diseases could be demonstrated between women in different family types (cf. table III).

Diseases of the Respiratory System

Acute infections of the air passages as nasopharyngitis, tonsillitis, laryngitis, pneumonia, so-called influenza, acute bronchitis, peritonsillitis, and so on, have not been included in this report. The medical

examination was generally made when the patient was free from infection and could thus not give a correct picture of the actual frequencies. An estimation has, however, been made of infections of the sinuses. These frequencies are probably not particularly reliable either; it is of interest however, that there was nothing to indicate any difference worth mentioning between the samples regarding the number of persons who had suffered from such illnesses (see table II). Only one of the persons examined suffered from sinusitis at the medical examination.

Chronic bronchitis occurred in the paupers in 6.0 per cent of the men and 3.6 per cent of the women, in the controls in 3.9 and 1.9 per cent respectively. The differences between the samples were not significant. It is possible that the cases of bronchitis, on the average, were more severe in the paupers than in the controls. This was suggested, among other things, by the far higher frequency of emphysema (nos. 502.0 and 527.1 in the nomenclature) among the paupers. Emphysema, according to some authorities, may be related to prolonged and severe bronchitis (cf. Werkö 1950, Hedenius 1957, and others). Among the men 7.8 per cent of the paupers and 1.3 of the controls had emphysema ($\chi^2_c = 6.11^*$), among the women 2.4 and 0.3 per cent respectively ($\chi^2_c = 3.71$). χ^2_s for both sexes was 9.82**; d.f. = 2. Here this diagnosis has only been made after a roentgenologic examination (in connection with the medical examination or earlier). The percentage figures given were therefore certainly minimum values.

Other diseases of the lungs were very uncommon; no significant differences between the samples could be demonstrated.

Altogether chronic disease of the bronchial tubes and lungs (in which have been included nos. 502 and 525–527 in table II, that is chronic bronchitis, chronic interstitial pneumonia, bronchiectasis, atelectasis and emphysema) occurred in men in 12.0 per cent of the paupers and 5.3 per cent of the controls ($\chi^2_c = 3.74$). In table II one case was classified under three headings. Among women these conditions occurred in 6.6 per cent of the paupers and 1.9 per cent of the controls ($\chi^2_c = 6.00^*$). In table II one case was counted twice. χ^2_s was for both sexes = 9.74**; d.f. = 2.

It is hazardous to compare these frequencies with the results of other surveys, since it is not certain that the interview technique, examination methods, classification and the boundary line between health and sickness were identical in the respective surveys. Teilmann, however, found about the same figures for chronic bronchitis among the paupers (6.5 per cent of the men and 3.8 per cent of the women) but considerably

fewer cases of emphysema (3.0 and 0.3 per cent respectively) which is about the same as in the controls. Rülcker found much lower figures for chronic bronchitis (1.2 per cent for men and 1.1 per cent for women). It may have been due to incomplete information.

The frequencies which are given in most sickness surveys for the extent of chronic disease of the respiratory system are difficult to compare with the data provided here. The diseases have often been classified in another way, the incidence has been given instead of the prevalence etc. In the Stockholm Health Survey, which used the same nomenclature and investigated the prevalence of illness, it is surprising that only isolated cases were found (in the ages 21–68, 0.7 per cent of men and 0.3 per cent of women). It is true that bronchitis, for instance, may be more frequent in the lower social strata (see page 22). The considerably higher frequency of chronic diseases of the respiratory system among the controls, can, however, hardly be explained by this factor alone. Even methodological differences in the two surveys must have played a part. According to analyses of postmortem findings, the frequency for bronchiectasis alone is about 1.5 per cent; many of these cases have, however, shown no clinical symptoms previously (Wassén 1946) and the figures, therefore, cannot be compared with the results of ordinary sickness surveys.

Diseases of the respiratory system, according to most investigators, are probably more frequent in men than in women (cf. Boyd 1940, Werkö 1950, Cohn & Lingg 1950, Hamilton cited by Perman 1952, and others). In some surveys, however, no difference worth mentioning between the sexes has been found (cf. e.g. Morbiditetsundersøgelsen 1953). The figures recorded make it clear that these diseases in the present material were more frequent in men than in women, regardless of whether the comparison referred to single or married and cohabiting persons. This applied to both samples (for the total number of chronic illnesses of the respiratory system recorded here, for instance, χ^2_c for the paupers was 4.65*, for the controls 2.86); there is, however, nothing to suggest that the increase in morbidity was more pronounced for men than women.

Diseases of the Digestive System

Diseases of the buccal cavity have been excluded from this survey since it was assumed that reliable information could not be obtained. Only in one case was there a demonstrable disease of the esophagus, namely a case of varix of esophagus in cirrhosis of the liver.

The diagnoses of the various diseases of the stomach were based, almost without exception, on information obtained from hospitals and colleagues, in a few cases following investigations prescribed at the medical examination. The diagnosis of achylia gastrica and dyspepsia at the medical examination is, however, somewhat uncertain; generally examinations of the gastric juice and other special investigations were not made on these occasions. For the diagnosis of ulcers, however, positive roentgenologic findings were demanded. Since not all cases with gastric symptoms received a roentgenologic examination, some cases of ulcers have probably been overlooked and have been classified instead as chronic gastritis.

Ulcers of the stomach and duodenum were found at the medical examination about equally often in both samples (among the men in 3.0 per cent of the paupers and 3.3 per cent of the controls, among the women in 0.6 and 1.0 per cent respectively). The number of persons who had suffered from ulcer at some period was, on the other hand, somewhat higher among the paupers than the controls (13.3 per cent of the male paupers and 9.9 per cent of the male controls had had ulcers, for the women the figures were 6.3 and 3.8 per cent respectively); however the differences were not significant. Eleven paupers and seven controls had undergone an operation for ulcers.

In Teilmann's material 4.2 per cent of the men and 0.3 per cent of the women suffered from ulcers, which did not diverge significantly from the frequencies in the present survey. If cases of gastritis are also included, ulcers or gastritis occurred in the paupers in Stockholm in 9.0 per cent of the men and 2.7 per cent of the women, while Teilmann reported 7.2 and 1.0 per cent respectively, which does not diverge significantly either.

Teilmann was able to demonstrate a significantly higher frequency of ulcers and chronic gastritis among the male paupers than in the general male population. In Copenhagen these conditions, according to Alsted (1952) are present in 4.9 per cent of men. Such comparisons are, however, hazardous. In the Health Survey in Stockholm there were seven cases of ulcer of the stomach and 90 cases of ulcer of the duodenum, which was 5.7 per cent of men and 2.3 per cent of women. Standardized to the same age distribution as in the relief group this would be 7.7 per cent of the men and 2.6 per cent of the women, which is higher than in the present sample. On the other hand only five cases of chronic gastritis were found among the men and three among the women. The corresponding unstandardized frequencies were 0.3 and 0.3 per cent

respectively, that is, considerably lower than in the sample. The differences may have been due partly to differences in classification. In the present survey there were included, as pointed out earlier, only cases confirmed by roentenologic examination with active symptoms; uncertain cases were classified as chronic gastritis. In the Health Survey even cases of ulcer of the duodenum without niche were included if there were symptoms of ulcers during the past two years and chronic changes of the duodenum. The number of cases of ulcer of the stomach and ulcer of the duodenum with niche was 34, which, after standardization for age, was 1.7 per cent for men and 1.3 per cent for women; thus only insignificantly divergent from the samples. If the number of cases of ulcers and gastritis in the Health Survey are summated, and standardized to the same age distribution as in the paupers, frequencies were obtained of 8.5 per cent for men and 2.9 per cent for women, which agreed fairly well both with the figure already given for paupers and with the corresponding figure for the controls (5.3 and 4.2 per cent respectively).

Otherwise in different surveys rather varying ulcer frequencies are given for the general population. This may to some extent be related to the fact that ulcer of the stomach has long been on the increase (cf. Alsted 1938, Morris & Titmuss 1944, 1954, Bjørn-Hansen 1949, Tomenius 1955, and others). It seems on the whole, however, that the prevalence is also uneven; considerable differences have been demonstrated in different parts of the same country (cf. Poppe 1946, Schanke 1946, Knutsen & Selvaag 1947). Frequencies comparable with those found in the Health Survey in Stockholm have been given in various places (cf. Krarup 1955, and others). In most of the surveys, however, somewhat lower frequencies have been registered. Schanke (1946) found, for instance, in north Norway an incidence of gastro-duodenal ulcer of between 1.6 and 1.7 per 1000 in persons over 16. Knutsen & Selvaag (1947) found in Drammen, that the incidence of ulcers during one year was 4.3 per cent for men and 1.4 per cent for women; such information on the incidence is, however, difficult to compare with the figures given already on the prevalence of the illness. Doll & Avery-Jones found in London in 1951 that 5.8 per cent of the men and 1.9 per cent of the women had, or had previously had, ulcer of the stomach (Jones 1955).

The higher morbidity for men is widely known (Weidinger 1941, Ihre & Müller 1944, Schanke 1946, Bjørn-Hansen 1949, Perman 1952, Alsted 1954, Tomenius 1955, Ohma 1957, and others); this is, however, regarded as open to question by Ihre & Müller (1944).

There is thus nothing which suggests that ulcer (or other diseases of the stomach and duodenum) are more frequent among paupers. This may, perhaps, be regarded as somewhat surprising. Ulcer can cause considerable disability and in addition the disease has a long course with frequent relapses (cf. e.g. Malmros' discussion on prophylaxis of ulcer 1946). The situation may possibly be explained by the fact that the pauper material consisted of chronic relief cases who had received assistance for more than six months during the year selected. In general the sick leave period in ulcer is probably not as long as this at each attack; such cases may, therefore, not have been included in the long-term group of the paupers.

Among the men 10.2 per cent of the paupers and 9.2 per cent of the controls had had appendicitis; among the women 7.8 and 9.3 per cent respectively. Here were included only cases which had been admitted to hospital; $\frac{9}{10}$ of these had undergone an operation. An operation, however, does not necessarily mean that the diagnosis was confirmed; in some cases it may have been a question of mesenteric lymphadenitis. On the other hand many may have had appendicitis without being admitted to hospital, and perhaps without even having attended a physician. Probably the figures obtained are therefore minimum figures. In comparison may be mentioned the risk figures for contracting appendicitis which Quensel estimated on the basis of Petrén's material from three towns in Skåne (Petrén 1941). At the age of 70 the risk was 17.1 per cent for men and 13.5 per cent for women (according to Petrén's instructions the percentage figures have been increased 10 per cent to correspond better to the actual situation). In the samples the total probability at the age of 65 (calculated according to formula 14) was 12.1 per cent for male paupers and 11.2 per cent for the male controls. For women it was 8.3 and 11.1 per cent respectively. The frequencies were thus somewhat lower than in Petrén's material. It is possible that this is related to the aforementioned lower frequency of appendicitis for the lower social strata (see page 24). As was stated earlier (see page 41), however, anamnestic data are probably less reliable in risk calculations than the hospital material on which Petrén's estimations were based.

Thus there is nothing which suggests that appendicitis has any significance in impoverization. This is also very natural. Acute appendicitis is, when properly treated, generally of short duration and without social significance.

The diagnosis of hernia of the abdominal cavity is fairly easy to make, anyway in the more pronounced cases. At the very most only a few mild cases can have been forgotten by the patient at the interview or have been overlooked at the physical examination. The disease was found in 7.2 per cent of the male paupers and 4.6 per cent of the male controls, and in 0.6 per cent of the women in both samples. In comparison it may be mentioned that in the Health Survey in Stockholm, hernia of the abdominal cavity was observed (after standardization to the same age distribution) in 6.6 per cent of the men and 2.5 per cent of the women. This does not diverge significantly from the frequencies obtained here either for men or for women. Figures of about the same magnitude are to be found in the literature (see the report of Garré & Borchard 1928, and others).

In Teilmann's material 4.9 per cent of the men and 2.3 cent of the women were found to suffer from hernia at the medical examination, which did not diverge significantly from the present survey or from the Health Survey in Stockholm. In the Danish general population, according to the sickness survey the frequency of hernia was 2.5 per cent in the men and 1.8 per cent in the women. The sickness survey was, however, a canvass survey and it is possible that the figures obtained were too low; however the controls in the present survey also showed considerably higher frequencies for men.

In the samples 21 of the paupers and 14 of the controls had previously been operated upon for hernia of the abdominal cavity. If these cases are included, 13.3 per cent of the male paupers and 11.8 per cent of the male controls and 3.9 and 1.9 per cent respectively of the women had suffered from hernia. The differences between the samples was thus not large. If the operated cases are included in Teilmann's material also, the corresponding figures would be 6.2 and 2.8 per cent respectively, that is, they were for the men lower than for the Swedish male paupers. Since, however, the material in the two surveys was partly based on anamnestic information, errors may have arisen.

It is widely known that hernia of the abdominal cavity is more frequent in men than in women (cf. Garré & Borchard 1928, and others), which is confirmed by the above frequency figures from various surveys and also by the samples.

In summing up it may be stated that nothing has been found which suggests that hernia plays any part in the development of the need for assistance.

Of other diseases of the intestines, gastro-enteritis and colitis were the most frequent. These illnesses occurred in the paupers in 1.8 per cent of the men, and 4.8 per cent of the women; in the controls in 2.0 and 2.6 per cent respectively. If previous cases are also included the difference between the samples was larger, as is clear from table II. It is, however, not impossible that some of these cases were overlooked at the interview and perhaps particularly in the controls.

The whole group of "other diseases of the intestines and peritoneum" (nos. 570-578 in the nomenclature; it should, however, be pointed out that cases of constipation alone were not recorded) occurred in the paupers in 2.4 per cent of the men and 5.1 per cent of the women, in the controls in 2.0 and 2.9 per cent respectively. In comparison it may be mentioned that in the Health Survey in Stockholm the corresponding group of illnesses, after standardization to the same age distribution as in the relief group, is estimated at 2.2 per cent of men and 2.8 per cent of women. In Teilmann's material these diseases occurred in 2.8 per cent of both sexes.

Thus no excess morbidity for these diseases can be demonstrated for paupers.

One of the examinees suffered from acute hepatitis. A few others declared that they had previously had hepatitis. The frequencies obtained from information received on this illness are probably too low, and are not worth further attention.

Two cases of cirrhosis of the liver occurred in paupers (0.4 per cent) and one in the controls (0.2 per cent). Two other paupers had previously suffered from cirrhosis of the liver. In the Health Survey there were eight such cases (0.3 per cent); in Teilmann's material there was one case (0.1 per cent). It was thus a matter of low frequencies throughout.

Cholelithiasis and cholecystitis were diagnosed in three female paupers and two female controls (0.9 and 0.6 per cent respectively). Teilmann on the other hand found gallstones in 4.5 per cent of the women and none of the men. In the Health Survey in Stockholm the frequencies for cholelithiasis and cholecystitis were 1.9 per cent in men and 3.6 per cent in women (after standardization to the same age distribution as in the relief material). Presumably the diagnosis has been set in different ways in the respective surveys. In the Health Survey a roentgenographic examination of the gallbladder was made in all cases with a typical history. It was considered probable that there were even more cases, since a roentgenographic examination of the gallbladder was only performed when there were definite grounds

for suspicion. The present survey included only cases where the patient still had symptoms of gallbladder disease. A roentgenographic examination was undertaken only exceptionally. Other cases with a history or cholecystic symptoms were classified as previous cases, although calculi might well have been found at a roentgenographic examination. If previous cases are also included there were 4.2 per cent of male paupers and 3.3 per cent of the male controls who had had cholelithiasis or cholecystitis; among the women 10.5 per cent of the paupers and 6.4 per cent of the controls. An operation on account of cholecystic symptoms was performed on 21 of the female paupers and 12 of the controls. Thus the illness appears to have been somewhat more frequent among paupers, however not significantly so. If previous cases are also included in Teilmann's material, somewhat lower figures are obtained than in the present survey; this does not, however, permit of any conclusions being drawn, since such anamnestic data cannot be considered reliable. No surveys of the general population concerning the number of persons who have had disease of the gallbladder have been found. At autopsy examinations, as is well known, gallstones are observed far more often than in the clinical material recorded here (see the references in Mårtensson 1937, Ehrström 1942, and various textbooks, e.g. Hanssen 1930, Miller & Machella 1946).

The higher frequency of disease of the bile ducts in women is also widely known (cf. Hanssen 1930, Boyd 1940, Ehrström 1942, Miller & Machella 1946, Perman 1952, and others). Mårtensson (1944), however, found gallstone about equally often in both sexes.

Thus no definite excess of diseases of the gallbladder among paupers was found.

None of the diseases of the digestive system showed definite higher prevalence in the paupers than in the controls. No significant differences appear either if all cases of disease of the digestive system are summed. The percentage for men was then 19.9 for the paupers and 14.5 for the controls; among women 11.4 and 10.9 respectively. Even if all cases which had a history of such diseases are included, the frequencies for men would be 41.0 per cent of the paupers and 38.2 per cent of the controls; for women 42.8 and 30.0 per cent respectively. In women the differences were admittedly significant, but this was due above all to the high prevalence of gastroenteritis and colitis in the anamnesis of female paupers. The figures obtained could not, therefore, be regarded as reliable.

Diseases of the Urinary System

In diseases of the urinary system no distinction has been made between different forms of nephritis or nephrosis. All cases had been subjected to observation in hospital or special investigations. It is, however, possible that in isolated, mild cases, where the patients were not themselves aware of their illness, the condition was overlooked, since an examination of the urine was not performed in all cases. In the Health Survey in Stockholm five of the eight cases of nephritis were first discovered during the survey. Therefore the figures obtained here are probably too low.

Nephritis and nephrosis occurred among men in 4.2 per cent of the paupers and 0.7 per cent of the controls; among women in 2.1 per cent and 0.3 per cent respectively. The difference between the samples was not significant. If even previous known cases are included, the morbidity among men was 6.6 per cent for paupers and 2.0 for the controls ($\chi^2_c = 3.05$); among women 7.8 and 4.2 per cent respectively ($\chi^2_c = 3.22$). χ^2_s for both sexes was $= 6.27^*$; d.f. = 2. The figures are, however, probably somewhat uncertain for both samples, and a definite statement can hardly be made.

In Rülcker's material there were about ten of these cases ($= 0.5$ per cent), in Teilmann's only one ($= 0.1$ per cent). In the latter survey some cases of nephritis may have disappeared on account of disablement pensions. In the Danish sickness survey diseases of the kidney in the age-group 40–59 occurred in 0.3 per cent of men and 0.8 per cent of women. In the Health Survey in Stockholm nephritis and nephrosis occurred (after standardization to the same age distribution as in the paupers) in 0.5 per cent of the men and 0.1 per cent of the women. This was lower than for the paupers (when the standard error is estimated according to formulas 13 and 20 the differences are for men $3.7 \pm 1.6^*$, for women $2.0 \pm 0.8^*$). The morbidity frequency in the control material, on the other hand, agreed fairly well both with the Health Survey and the Danish sickness survey. Similar frequencies are also found in the literature (see various textbooks e.g. Bradley & Loeb 1946). The frequencies among men were, on the whole, about twice as high as among women; this is in agreement with the samples and the Health Survey, but on the other hand not with the Danish sickness survey. It is, however, a question of low frequencies and the variations may be fortuitous.

Only one case of calculi of the kidney was found in the male paupers and one among the controls. Teilmann and Rölcker also found only a few cases. In the Health Survey only two cases were found among the men. In the textbooks the frequency of calculi of the kidney is estimated, with the guidance of roentgenologic examinations and postmortem observations, at about 1 per cent (see Dennig 1952, and others). The clinically demonstrable cases in a sickness survey must reasonably be fewer.

Only a few cases of other diseases of the urinary system were found at the medical examination, of which three were cystitis. Probably some of these cases have been overlooked, particularly among women. A considerably larger number of women declared that they had suffered from cystitis previously; it is widely known that cystitis is most frequent in women (see various textbooks, e.g. Dennig 1952). Anamnestic data on such diseases must, however, be unreliable.

Even in Teilmann's and Rölcker's surveys only a few cases of pyelitis and cystitis were diagnosed at the medical examination. In the Danish sickness survey cystitis and other diseases of the urinary bladder were observed in 0.2 per cent of the men and 0.6 per cent of the women in the 40-59 age-group. In the Health Survey in Stockholm, after standardization to the same age distribution as in the paupers, the figures were 0.5 and 1.1 per cent respectively. The figures were thus low throughout.

In summing up it may be said that there was probably an increased frequency of nephritis and nephrosis in the paupers. Since these diseases are severely disabling the result is not surprising. On the other hand no divergence of any interest was found for other diseases of the urinary system.

Diseases of the Genital Organs

Inspection of the genital organs was made only by way of exception. Since anamnestic information is probably unreliable also, an analysis of this section is of no value.

Complications of Pregnancy

None of the persons examined were pregnant at the medical examination. Only about $\frac{1}{5}$ of the women were under 45, most of these single persons. Regarding the occurrence of complications of pregnancy, the

material is probably incomplete and the figures therefore unreliable. Severe complications of the type which appear in table II (eclampsia, ectopic pregnancy, placenta praevia, malposition of foetus in the uterus, thrombosis, embolism, mastitis etc.) had occurred in 3.0 per cent of the paupers and 1.9 per cent of the controls. Comparison with the results of other sickness surveys is probably meaningless on account of the nature of the material.

Skin Diseases

In computations of skin diseases, skin infections were not included. Other skin diseases taken together did not show any differences worth mentioning between the samples.

In the Danish sickness survey eczema and dermatitis occurred in 1.1 per cent of the men and 1.4 per cent of the women, which agrees well both with Teilmann's investigation (1.4 and 1.7 per cent respectively) and with the present samples (paupers 1.2 and 1.5 per cent respectively, controls 0.7 and 1.9 per cent respectively). In the Health Survey the corresponding frequencies (after standardization to the same age distribution as among the paupers) were 1.4 and 0.9 per cent.

Thus there was nothing to suggest an increased frequency of skin diseases in the long-term pauper population.

Diseases of the Organs of Movement

In some diseases of the organs of movement it is rather difficult to draw a distinction between the normal and the pathologic. This applies, for instance, to curvature of the spine, flat foot, hallux valgus and varus etc. Such conditions were not included in the comparison of the samples. In diagnosed cases of displacement of the intervertebral disc there were usually symptoms of sciatica and these were therefore transferred to the diseases of the peripheral nerves group.

The most common diseases of the organs of movement were joint affections. Here a distinction has been drawn between rheumatoid arthritis (no. 722.0) and osteo-arthritis deformans (nos. 723.0 and 723.1). There were three cases of acute arthritis of non-rheumatic etiology (nos. 720 and 721). In addition there was a fairly large number of cases of chronic arthritis which were neither definitely associated with wear and tear or with rheumatic affections. These cases have been classified here as other specified forms of arthritis (no. 724) and unspecified arthritis (no. 725) and treated together.

Chronic polyarthritis occurred in 57 cases. In about $\frac{4}{5}$ of these cases the diagnosis was confirmed by extracts from hospital case-papers or information from colleagues; in a few cases consultation with a specialist was arranged in connection with the medical examination. In cases where the diagnosis was made without the support of such investigations, since the patients did not wish to take advantage of the opportunity of consulting a specialist, they were without exception characteristic cases with typical histories. Most of these cases had also been hospitalized previously but no information on these hospital admissions could be obtained. The information may therefore probably be considered fairly reliable; if anything, the morbidity frequencies obtained were too low rather than too high.

Among the men rheumatoid arthritis occurred in 3.6 per cent of the paupers and in 1.3 per cent of the controls ($\chi^2_c = 0.90$); among women in 9.9 and 4.8 per cent respectively ($\chi^2_c = 5.47^*$). The frequency was higher for women both in the paupers ($\chi^2_c = 5.71^*$) and in the control groups ($\chi^2_c = 2.59$), which does not seem to be related to the different family types (cf. table III).

In Copenhagen Teilmann found chronic polyarthritis among 1 per cent of the male and 5 per cent of the female paupers; that is, lower than in Stockholm, and about the same as in the control material. Teilmann, however, pointed out that many rheumatic patients who were severely disabled had received a disablement pension and therefore were not included in his material. His frequency for paupers in the whole country, therefore, was somewhat lower than the average figure for chronic polyarthritis in the Danish population, which was investigated by Kalbak (1947).

Varying frequency figures have been given in different investigations for the prevalence of chronic polyarthritis. In 1943 an enquiry was made among all the doctors in Sweden in order to find out the number of persons suffering from rheumatic diseases (Statens offentliga utredningar 1945). Chronic rheumatoid arthritis (in which, however, were included chronic tendinitis, peritendinitis and bursitis, which have not been classified as chronic polyarthritis here) occurred in 0.17 per cent of men and 0.32 per cent of women. After standardizing the material to the same age distribution as in the control cases, the morbidity frequency was 0.30 per cent for men and 0.59 per cent for women. These were lower figures than in the control cases; in fact it had not been expected that this investigation would give a reliable picture of the total frequency of rheumatic illness. Edström (1944), however, undertook a

field survey in certain parishes in connection with the survey. Every family was visited, and all suspected cases were medically examined. The frequency of non-examined was about 5 per cent. Active chronic polyarthritis was found in 1.6 per cent, of which $\frac{1}{3}$ were men and $\frac{2}{3}$ women.

Both the enquiry and the field survey showed considerable variations in the frequency of chronic polyarthritis in different parts of the country. Investigations in other countries have also given varying results. In many investigations frequencies of less than 1 per cent have been obtained (see the references of the literature in Ammitzbøll & Snorrason 1952, and others). In field surveys, however, where the whole population has been investigated, considerably higher figures have always been obtained. Edström (1943) combined acute and chronic polyarthritis and estimated the prevalence as together 2.2 per cent, while the corresponding figure for the U.S.A. was 2.2 per cent (Collins 1933) and 3.0 per cent (Lombard 1934, cited by Edström); for England 2.1 per cent (Ministry of Health 1924, cited by Edström); and for Finland 0.9 per cent (Holsti & Rantasalo 1936 who, however, only used nurses for field work). More recent population surveys have also given rather high figures in various countries: Denmark (Kalbak 1947) 2 per cent for both sexes over 6 years of age; England (Kellgren *et al.* 1953) 1.4 per cent for men and 3.3 per cent for women; Czechoslovakia (Sitaj *et al.* 1954) 0.5 per cent for both sexes, and so on. The differences in frequency are not necessarily wholly dependent on geographic factors; they may also be to some extent due to differences in the various authors' definition of the disease.

Since chronic polyarthritis is more frequent in the older ages, comparisons between the samples and the surveys of the general populations referred to above must take the age factor into account. After standardizing the Health Survey in Stockholm to the same age distribution as in the sample, the frequency for chronic polyarthritis was 1.3 per cent for men and 1.8 for women. For women it was distinctly lower than among the controls (if the standard error is estimated according to formulas 13 and 20 the differences are $3.0 \pm 1.3^*$), and for both sexes lower than among the paupers (differences for men 2.3 ± 1.5 , for women $8.1 \pm 1.7^{***}$). Edström's field survey could not be standardized to the same age distribution as in the sample since there was no information on the morbidity frequencies of chronic polyarthritis in different ages. Instead, despite the large sources of error (cf. page 53), the sample (divided into age-groups 20–40 and then in 10 year age-

groups) has been standardized to the same age distribution as for the whole country in 1943, which is probably approximately that of the parishes in question also, and to a sex proportion of 1:1. For the controls a frequency of 1.5 per cent was obtained, and for the paupers 3.3. Thus the controls did not differ from Edström's material, while the paupers showed a higher frequency. On account of the small age-groups, standardization of this kind entails large sources of error; calculations of significance cannot be made. However nothing appeared which was in direct contradiction to the previous comparison. Therefore, despite the uncertainty of some comparisons, the morbidity for chronic polyarthritis in the paupers was shown to be excessive. The increase seems to be most marked for women, among whom rheumatic diseases are most widespread even in the general population; this is clear from the investigations mentioned and also from many others (see WHO's expert committee 1954, and others).

Some persons in the sample declared they had previously suffered from rheumatoid arthritis, although the disease had cleared up. This could also be confirmed in most cases through information from various sources. The figures obtained for persons who were suffering, or had suffered, from chronic polyarthritis, were in men 4.8 per cent for the paupers and 3.3 per cent for the controls ($\chi^2_c = 0.16$); in women 13.9 per cent for the paupers and 6.4 per cent for the controls ($\chi^2_c = 8.98^{**}$). Thus it was again women who showed the greatest increase. Edström (1944) found for both sexes together that 2.0 per cent were suffering from, or had suffered from, rheumatoid arthritis. If the samples are standardized as above to the same age distribution as the general population and to sex proportions 1:1, a frequency of 2.5 per cent was obtained for the controls, and 4.8 for the paupers. Such a comparison does not permit definite conclusions being drawn, as was mentioned previously; however it does seem to point in the same direction as earlier comparisons.

The diagnosis osteo-arthritis deformans occurred in 96 cases. In table 25 are given the joints affected by the disease; in some cases several groups of joints were affected, and the total frequency given, therefore, is less than the sum of the sub-diagnoses. The diagnosis of osteo-arthritis deformans is rather difficult to make at an ordinary examination. Some of the cases must be described as uncertain; the frequencies obtained, therefore, cannot be considered reliable either.

Localization to the knee occurred in 54 cases. This diagnosis was

TABLE 25. *Prevalence of osteo-arthritis deformans.*

Diagnosis	Men			Women		
	Paupers <i>n</i> = 166	Controls <i>n</i> = 152	χ^2_c	Paupers <i>n</i> = 332	Controls <i>n</i> = 313	χ^2_c
Osteo-arthritis deformans genu . .	3.0	3.9		7.5	5.8	0.56
Osteo-arthritis deformans coxae . .	3.6	0.7	1.99	1.5	0.6	0.47
Osteo-arthritis deformans al. art. . .	0.6	0.7	—	0.3	0.6	—
Spondylarthrosis deformans	7.8	5.3	0.48	3.6	0.6	5.39*
Total	11.4	9.9	—	11.7	7.3	3.10

confirmed from hospital records and colleagues in about $\frac{1}{3}$ of the cases. In the other cases the diagnosis was only made when the condition was very typical. It must therefore be a question of minimum figures here. No difference worth mentioning appeared between the samples. Teilmann found considerably higher frequencies in his investigation in Copenhagen (9 per cent for men and 14 per cent for women), and was able to establish higher frequencies of arthrosis among the paupers than in the general population (according to Kalbak 1947). Standardized to the same age distribution as in the paupers Kalbak's material gave for both sexes together a percentage of 4.9, while the corresponding figures, after adjustment to a sex proportion of 1:1, were 5.3 per cent for the paupers and 4.8 per cent for the controls; that is, about the same as in Kalbak's material.

Osteo-arthritis deformans coxae was found in 14 cases, all confirmed by specialists either before or in connection with the medical examination. It may, however, be assumed that some minor cases were overlooked, and that here also it is a matter of minimum frequencies. There were more cases among the paupers than in the controls, however the difference was not significant. Teilmann found about the same number of these cases in his material (2 per cent in both sexes). In the 45-59 age-group the frequency was significantly higher than in the general Danish population (Kalbak 1947), but on the other hand it was lower among persons over 60. The latter circumstance may be due to the fact that some of them have received pensions and no longer draw relief. Standardized to the same age distribution as in the present sample, Kalbak's material for both sexes together gives a figure of 2.5 per cent. In the control sample, after correction to a sex proportion of 1:1 there was only 0.7 per cent, and among the paupers 2.6 per cent. This would

mean that this diagnosis was made more restrictively in the present survey than in Kalbak's investigation, unless the disease is far more uncommon in Sweden than in Denmark, which seems rather unlikely.

In five cases there were changes due to osteo-arthritis deformans in other joints also. Spondylarthrosis deformans was more common with 35 cases, all confirmed by special investigations, including roentgenology and other measures. Probably mild cases have been overlooked here also. Spondylarthrosis deformans was far more common among female paupers than in the control material. Among the men, on the other hand, the difference was very small. Teilmann found far lower frequencies (3.0 per cent for men and 1.0 per cent for women), that is, lower figures for the men than in the male controls in the present survey. It is possible that disablement pensions had brought about a reduction in the Danish morbidity figures here also. A comparison with Kalbak's material, however, showed considerably higher frequencies among paupers, any way in the higher age-groups, for a combination of spondylarthrosis deformans and the group of other diseases of joint (that is joint diseases other than chronic polyarthritis and osteo-arthritis deformans of the knee or hip). After standardizing to the same age distribution as in the present sample, Kalbak's figures would be 1.0 per cent, while the frequency for spondylarthrosis deformans alone in the paupers in Stockholm, after correction to a sex proportion of 1:1, would be 5.7 per cent, and in the controls 3.0 per cent. If the group of other diseases of joint is included the differences are still larger. The divergence from Kalbak's and Teilmann's material is so great that it can hardly be due to actual differences in the morbidity in the respective populations; differences in diagnosis must play a part here also. Here, however, the Kalbak and Teilmann seem to have been more restrictive in their diagnosis in contrast to the situation regarding osteo-arthritis deformans genu and coxae.

The whole of the osteo-arthritis deformans group occurred in 11.4 per cent of the male paupers and 9.9 per cent of the male controls; for women the figures were 11.7 and 7.3 per cent respectively. Thus the difference was very small for men, and was not significant for women. This is quite contrary to Teilmann's result. It is true that he found osteo-arthritis deformans about as frequently, in 9.0 per cent of men and 11.4 per cent of women. This agreement is, however, misleading, since, as already mentioned, there were large differences in the localization of the disease. Most remarkable is that chronic polyarthritis, according to Teilmann, was not more common among the paupers

than among other persons, while paupers in Stockholm, or anyway the women, showed an unquestionable and marked excess in the number of such cases. On the other hand the number of osteo-arthritis deformans cases was raised in the Danish relief group, while here no definite increase could be shown. The first difference, could, as already mentioned, possibly be due to some pensioners disappearing from Teilmann's material. The other difference is more difficult to explain. Here it has been questioned whether the diagnoses were made in the same way in both surveys. In judging this matter it is of interest to study experiences gained in other investigations.

Edström (1944) in his field study, found deforming joint changes in 0.9 per cent of the population. If the samples were standardized to the same age distribution as in the general population and to a sex proportion of 1:1, a percentage of 3.8 was obtained for the controls, and 6.6 for the paupers. Thus a considerably higher figure was obtained for the paupers although the comparison with the Danish investigation had suggested that at least for osteo-arthritis deformans genu and coxae, the diagnoses were too restrictively applied in the present survey. No definite conclusions, however, may be drawn from this comparison for reasons already mentioned. In the enquiry to Swedish doctors mentioned earlier (Statens offentliga utredningar 1945), the frequency of osteo-arthritis deformans was only 0.17 per cent, that is, even lower than in the field survey.

In the Health Survey in Stockholm, on the other hand, the diagnosis osteo-arthritis deformans was made in 15.2 per cent of the cases. Standardized to the same age distribution as in the sample this would be 24.2 per cent for men and 26.0 per cent for women, that is, more than twice as high as in the sample, and many times as high as in Edström's field survey. It was pointed out, however, that spondylarthritis deformans, for instance, was often discovered incidentally in miniature radiography of the lungs or stomach, and that some of the patients had had no symptoms or a minimum of trouble from the illness.

Even in other investigations the frequency of osteo-arthritis deformans has varied greatly. In England Kellgren *et al.* (1953) found in a household canvass including a medical examination by rheumatologists of all suspected cases, that "osteo-arthritis" occurred in 4.5 per cent of the men and 7.9 per cent of the women. In Czechoslovakia Sitaj *et al.* (1954) found in medical examinations of a population that "osteoarthritis" was present in 1.7 per cent. In clinical material osteo-arthritis deformans cases usually form only a small part of the so-

called rheumatic cases (see Jonsson *et al.* 1955, and others). One reason for the divergences may be the fact that the scope of treatment is very limited (see Holmdahl 1954, and others). In post-mortem material osteo-arthritis deformans is frequently found. Schmorl-Junghaus (1932) found, for instance, that by the age of 50–59 years, 93 per cent of the men and 84 per cent of the women showed evidence of spondylosis. Silfverskiöld (1933) showed in Swedish material that osteo-arthritis deformans occurred in 33 per cent of persons of 60, and in 86 per cent of persons of 80.

These very varied frequencies show that there is no uniform practice in the diagnosis of osteo-arthritis deformans. Even if different research workers had in mind the same clinical picture, which is by no means certain, they must certainly have drawn the dividing line between health and disease in different ways. Some perhaps only counted severe cases, and others included even mild symptoms. If all cases were included that had changes demonstrable by roentgenology, figures would probably be obtained which approach those of postmortem findings.

While diagnosis in this sphere is so uncertain and the boundaries so fluid, it is very difficult to get any definite idea of the prevalence of the disease through population surveys of traditional type. The criteria of the disease must be defined far more precisely. There is probably no reason, therefore, to attach particular importance to the frequencies obtained in the present survey. The fact that they lie midway between the extreme values does not mean that judgement was optimal.

On the other hand I am certain that all the cases which are classified here as osteo-arthritis deformans had marked subjective symptoms from their illness. As already mentioned, the diagnosis was in most cases confirmed by another observer also. In consideration of this, and in spite of the varying survey results which have been referred to here, I am still able to maintain that it must be a question of minimum figures. Comparisons with other surveys must obviously, for reasons already mentioned, be regarded as quite meaningless. The question remains as to whether a comparison of the samples may be accepted. Here, as in other diseases, assessments have been based on identical criteria. However it was unavoidable that the vague distinctions already demonstrated in the diagnosis of osteo-arthritis deformans should cause one some uncertainty. If the diagnosis is so subjective, the possibility cannot be completely excluded that, in the classification, irrelevant factors have played a part. It is possible that in my efforts to avoid artificial and exaggerated differences between the samples, I

was more restrictive in my diagnosis of the paupers than of the controls. Therefore the possibility cannot be excluded that the frequency for the paupers is too low in comparison with the controls. Osteo-arthritis deformans might therefore in actual fact have been more common among the paupers than among the controls. Teilmann's assumption that there was excess morbidity in the paupers would in that case be correct. This, however, is only supposition.

As is apparant from table II, there were 26 further cases with joint disease which could neither be described as chronic polyarthritis or osteo-arthritis deformans. They were more common among the paupers than among the controls, but not significantly so.

The group of diseases described as muscular rheumatism (no. 726) is diffuse and difficult to define. The symptoms also are sometimes of short duration or variable. Here only the most manifest cases were included. The frequency therefore, certainly lay considerably under the true level. The cases were divided into certain sub-groups according to the nomenclature. If cases classified as rheumatism unspecified (no. 727) are included, which can hardly be regarded as any great error, since in every-day language rheumatism usually implies muscle pain of different types (cf. Teilmann page 43), muscular rheumatism occurred among the paupers in 3.6 per cent of the men and 3.0 per cent of the women. In the control material it was less common (0.7 and 1.0 per cent respectively); the difference between the samples was, however, not significant.

In the Health Survey in Stockholm the corresponding diagnoses (after standardization to the same age distribution as in the samples) occurred in 1.3 per cent of both men and women. This agrees rather well with the figure obtained for the controls, but was lower than for the paupers. Definite conclusions can, however, not be drawn, on account of the character of the material, and calculations of significance have therefore not been made. No comparisons can be made with the aforementioned enquiry to the Swedish doctors (Statens offentliga utredningar 1945) and Edström's field survey, since muscular rheumatism was there combined with sciatica, backache etc. In other population surveys also the classification has varied (cf. Kellgren *et al.* 1953, de Blecourt & Basart 1954, Sitaj *et al.* 1954, Hult 1954, and others).

Teilmann found far higher frequencies, but the calculations referred to persons who had suffered from muscular rheumatism etc. at some time during the years 1944-45, and not on the occasion of the examina-

tion, which must give considerably higher figures for a disease of such short duration. He obtained a minimum figure of 16 per cent. In the present survey 16.3 per cent of the male and 10.2 per cent of the female paupers had suffered or were still suffering from muscular rheumatism, in the controls the figures were 8.6 and 8.0 per cent respectively. For the men the difference was fairly large, however not significant. The result is probably not comparable with Teilmann's, however, and considering the diffuse nature of the diagnoses, comparisons of this type are in any case hazardous.

According to Teilmann there is nothing which suggests that the prevalence of muscular rheumatism among the paupers differs from that in the general population. In the present survey, however, certain trends have appeared which suggest an actual increase in the prevalence of muscular rheumatism among paupers, particularly the men. The difference from the control material is, however, not significant, and comparisons with the Health Survey do not permit of any definite conclusions, owing to the diffuse nature of the disease. The question has therefore been left open for the time being.

In some investigations the frequencies for the whole group of rheumatic diseases has been given. Opinions are divided, however, as to which conditions should be included. Chronic polyarthritis, osteo-arthritis deformans, rheumatic fever, muscular rheumatism and a group of unspecified rheumatic symptoms are generally included. Some include also other types of arthritis, sciatica, gout, bursitis, synovitis etc. (see Edström 1943, Kellgren *et al.* 1953, and others). An attempt has been made in WHO to obtain a more uniform practice in this sphere (Expert committee 1954). The figures hitherto produced are therefore very varied. In the National Health Survey in the U.S.A. (1937), the rheumatism frequency was estimated, for instance, at about 5.4 per cent for the whole country (see Cohn & Lingg 1950). In an interview survey in the U.S.A. it was found that 9.3 per cent had rheumatism (Woolsey 1952). In a Dutch interview survey with medical examinations of 80 per cent of the population, 18 per cent had rheumatism (de Blecourt & Basart 1954). In a Czech population survey 15.2 per cent had symptoms of rheumatic disease (Sitaj *et al.* 1954). Edström, in his field study 1943, found rheumatic disease in about 4.3 per cent of the population. In Leigh in England, Kellgren *et al.* (1953) estimated, with the help of interviews and medical examinations, that rheumatism in 1949-50 was present in 16 per cent of men and 21 per cent of women.

Among the control cases 14.5 per cent of the men and 15.0 per cent of the women had rheumatism at the examination. As rheumatism were reckoned chronic polyarthritis, other forms of arthritis, osteoarthrosis deformans, muscular rheumatism and a group of unspecified "rheumatic symptoms". In order to be able to draw comparisons with the investigations described above standardization has been carried out as before, despite the risks involved in this procedure, to the same age distribution as in Sweden 1943. The age distribution should then be about the same as in Edström's material; the difference in the age composition compared from foreign surveys was probably reduced also. For the control cases the percentages obtained were 7.0 for men and 7.5 for women; for both sexes, after correction to a sex proportion of 1:1 the percentage was 7.3. This frequency was thus above Edström's figure, but considerably lower than the figures cited for Czechoslovakia and Holland, and nearest to Woolsey's figure for the U.S.A.

For the paupers the corresponding figures were 19.3 per cent for men and 27.1 per cent for women. The difference between the sexes could be almost entirely ascribed to the high ratio of chronic polyarthritis in women, which was commented upon earlier (page 220). The divergence from the control cases was not so great for men ($\chi^2=0.81$), for women, on the other hand it was significant ($\chi^2=13.4^{***}$). Corrected to the same age distribution as for the whole of Sweden 1943, the frequency for men was 6.6 per cent and for women 18.0 per cent, and for both sexes with a sex proportion of 1:1, 12.3 per cent.

Kellgren *et al.* reported also that 40 per cent were suffering or had suffered from rheumatic symptoms previously. Corresponding figures for the control material were 15 per cent, for the paupers 25 per cent, despite the fact that the samples must have included far more elderly persons than the general English population which Kellgren *et al.* interviewed. The definition of the disease was, however, broader in the English survey. Even other differences may have existed, for instance in the interview technique etc. Comparison between such survey results is thus hazardous.

Of other diseases of the organs of movement only isolated cases were met with. In the Health Survey the figures were equally low. No differences appeared between the two samples or between the samples and the Health Survey. On account of the small number of cases, comparisons with other surveys are probably meaningless.

Possibly Dupuytren's contracture deserves some attention. Three

cases occurred among the male paupers (1.8 per cent), one in the male control group and one in the female paupers. In the Health Survey six cases were found among the men (which corresponded to 0.6 per cent, after standardization to the same age distribution as among the male paupers 0.9 per cent), and one among women. Teilmann found three cases among men (=0.7 per cent). This is somewhat lower than what was previously known on the extent of Dupuytren's contracture in the general population (cf. Lund 1941, Skoog 1948, and others). According to Skoog considerably higher figures have been reported from homes for old people. Probably the varying result is partly related to the degree of accuracy in diagnosis. Special examinations would probably give higher results, as many mild cases would presumably be discovered. This applies also to investigations of other diseases.

To sum up, it may be said that chronic polyarthritis showed a high prevalence in the paupers, particularly among women. Regarding osteoarthrosis deformans the situation was uncertain. The excess morbidity in the paupers which Teilmann demonstrated could not be definitely confirmed. No certain increase could be shown for other joint diseases. Even for muscular rheumatism no definite increase could be demonstrated in the paupers. Some observations, however, suggested that there was actually some excess in the number of such cases, especially among men.

Malformation

Malformations were met with only in a small number of cases. The most common malformation was congenital dislocation of the hip, of which there were four cases among the paupers and one case in the controls, that is 0.8 and 0.2 per cent respectively. This deviates little for the control material from what is known of the prevalence in the general population (e.g. according to Fremming 1947, 0.15 per cent; Bremer 1951, 0.38 per cent; and Severin 1956, 0.09 per cent). The paupers did not diverge significantly either. In Teilmann's material the figure was 0.3 per cent.

Only isolated cases of other malformations were met with. The total number of malformations was 1.6 per cent of the paupers and 0.6 of the controls. The difference could be fortuitous. The frequency for the controls agreed with the figure obtained by Fremming (0.46 per cent), Bremer (0.68 per cent) and others. The frequency for paupers was, on the other hand, higher than that of Fremming and Bremer ($\chi^2 = 11.8^{***}$

and 4.97* respectively); in the calculations formula 9 was used, since both these investigations were surveys of whole populations. Teilmann's material contained 1 per cent malformations.

It is thus possible that the number of cases of malformation was somewhat higher in the paupers; no definite conclusion, however, can be drawn.

Invalidity

During the collection of material it was impossible to obtain reliable information on all accidents that had occurred, nor was it possible to draw a definite dividing line between serious and trivial accidents. Superficial and apparently insignificant injury of the soft tissues sometimes became infected and resulted in prolonged disability, while fractures sometimes healed quickly. It was decided, therefore, as already pointed out in the introduction, not to attempt a complete survey in this sphere. Only accidents that involved permanent injury with reduced ability to work, limitation of movement of joints, loss of function, amputations and similar defects were included. On the other hand minor defects such as amputation of fingers where function was not impaired, scarring and so on were to be ignored. This could naturally make it difficult to compare the situation in the general population, but was regarded as the only warrantable method, considering the nature of the material. The information which is used in the calculations may therefore be regarded as rather reliable. Obviously disabling accidents could hardly have been overlooked. In table 26 the types of injury which have been included are given in detail.

Disabling head injuries occurred in seven cases. Fracture of the skull without permanent complications had occurred in a further five cases. In addition there were a further 30 cases with concussion who had been admitted to hospital, but had not incurred permanent physical injury. The number of head injuries in the cases examined would then have totalled 10.2 per cent for men and 3.6 per cent for women in the relief group, and 7.2 and 1.6 per cent respectively in the control material. The difference between the samples was not significant; the higher percentage for men is well known from previous investigations.

Other disabling accidents showed higher frequencies for male paupers than male controls. The difference was, however, not significant. No such difference could be demonstrated among the women. A remarkable fact was that the frequency among the controls was not higher for men than for women. It may, however, be pointed out that if accidents that

TABLE 26. *Head injuries with and without subsequent invalidity and cases with permanent invalidity due to accident, illness or malformation.*

Diagnosis	Men				Women			
	Paupers n = 166		Controls n = 152		Paupers n = 332		Controls n = 313	
	No.	%	No.	%	No.	%	No.	%
Fracture of skull with- out invalidity	1		2		1		1	
Fracture of skull with invalidity ¹	3		—		1		—	
Fracture of the verte- bral column without spinal cord lesion ² . .	—		1		2		1	
Fracture of the verte- bral column with spi- nal cord lesion ³ . . .	1		—		—		—	
Fracture of upper limb ⁴	2		1		3		6	
Fracture of lower limb ⁵	3		1		4		2	
Sprains and strains of joints ⁶	1		1		1		1	
Commotio cerebri with- out invalidity	12		7		10		4	
Commotio cerebri with invalidity ⁷	1		2		—		—	
Injury of pelvic organs ⁸	1		—		—		—	
Facial injury ⁹	—		—		—		1	
Injury of the upper limb ¹⁰	2		1		1		—	
Injury of the lower limb ¹¹	3		1		1		—	
All head injuries without invalidity	13	7.8	9	5.9	11	3.3	5	1.6
All head injuries with invalidity	4	2.4	2	1.3	1	0.3	—	—
All other injuries with invalidity	13	7.8	5 ¹²	3.3	12	3.6	11	3.5
Disablement due to ill- ness ¹³	27	16.3	4	2.6	33	9.9	12	3.8
Disablement due to mal- formations ¹⁴	1	0.6	—	—	3	0.3	1	0.3
All invalids	45	27.1	11	7.2	49	14.8	24	7.7

did not cause fairly severe disability had also been included, there would have been a considerable difference between the sexes.

Comparison with Teilmann's material was difficult, as it was uncertain if the same principles of selection had been followed in judging invalidity. In the Danish relief material 13.9 per cent of the men and 2.2 per cent of the women had been disabled through accidents. There were thus rather more cases among the men than in the present survey, but fewer among the women. The differences may be due to chance or different methods of estimation and no importance should be attached to them. Rölcker reported considerably lower figures (0.5 and 0.2 per cent respectively). On account of the subjective basis of the estimations, comparisons with other surveys have not been made.

In the table a number of cases of invalidity due to disease or malformation have also been grouped together. It is clear that such a selection of cases must to some extent be arbitrary. Only cases with direct disability or obvious deformity have been included. The details of the selection are shown in the table.

Far more of the paupers than of the controls had been disabled by illness (χ^2_c for men = 15.2*** for women = 8.34**).

If all the cases of invalidity are added together it is apparant that

¹ Facial paralysis, imparied hearing, diplopia etc.

² Severe spinal insufficiency.

³ Humpback with paralysis of the legs.

⁴ Reduced mobility of wrist, elbow, shoulder etc., muscular atrophy, chronic pain.

⁵ Fracture of neck of femur, with lameness and disablement, reduced mobility of hip joint, stiffness of knee or ankle, paralysis of peroneal muscles etc.

⁶ Reduced mobility of wrist, shoulder, ankle, knee. Difficulty in moving arms, legs.

⁷ Facial paralysis, neuralgia, dizziness, impaired hearing etc.

⁸ Severe injury of the urethra and lymphatic vessels with tendency to elephantiasis.

⁹ Tram accident resulting in facial paralysis and other injuries.

¹⁰ Reduced mobility following tendon injury.

¹¹ Amputation of leg following tram accident, reduced mobility of joints. Muscular atrophy with difficulty in walking.

¹² One case had two separate disabling injuries, therefore 5 cases but 6 accidents.

¹³ Here are included disabling diseases as, for instance, humpback and paraplegia following tuberculous spondylitis, apoplectic hemiplegia, paralysis due to poliomyelitis, amputations following diabetic gangrene, bone defects following operations for tumors or osteomyelitis, malum coxae senilis, ankylosis and deformities in chronic polyarthritis, injury following breast operations (reduced mobility of arm), disabling diseases of the nervous system etc.

¹⁴ Here are included only cases with congenital dislocation of the hip, since the others did not involve any severe degree of disability.

among the men 27.1 per cent of the paupers and 7.2 per cent of the controls were invalids at the time of the medical examination ($\chi^2_c = 20.2^{***}$) while the corresponding rate for women was 14.8 and 7.7 per cent respectively ($\chi^2_c = 7.38^{**}$). The difference between the male and female paupers was most marked for single persons (men 26.5 and women 14.0 per cent: $\chi^2_c = 6.43^*$); for married or cohabiting persons the difference was less (men 27.7 and women 21.9 per cent: $\chi^2_c = 0.16$).

It is thus clear that invalidity is frequent among paupers and also that men are most handicapped. Similar information for the general population could not be obtained. It is a question of judgement how the selection shall be made, and comparisons with figures from other surveys are probably hazardous.

Intoxication

Five of the paupers and five controls had previously been poisoned by lead, carbon monoxide, drugs etc. These are certainly minimum figures; particularly in the case of poisoning from drugs the examinee would probably have been disinclined to bring the matter up. In no case were definite somatic symptoms demonstrable at the medical examination (cf. page 139). Teilmann found only one case of poisoning with symptoms at the medical examination among his paupers. This group of illnesses can hardly have any importance worth mentioning in this connection.

Other Diagnoses

In a small number of cases with special symptoms no definite diagnosis could be made at the medical examination. This situation occurred in about ten cases. In a few cases also, there were symptoms of not very well defined type from a particular system. Backache may be mentioned as an example, a diagnosis which was made in about fifteen cases. Even the diagnosis senile decay or exhaustion which was sometimes made together with another diagnosis is rather a provisional symptomatic diagnosis. A detailed analysis of groups of illness of this type was considered worthless.

Summary

In table 27 the various diseases have been classified in groups. In diagram 3 and 4 the groups of diseases are arranged in falling order of their prevalence in the pauper population, and the controls are included for comparison.

TABLE 27. *Prevalence of various groups of physical diseases.*

Diagnosis	Men				Women			
	Paupers n = 166		Controls n = 152		Paupers n = 332		Controls n = 313	
	No.	%	No.	%	No.	%	No.	%
Tuberculosis	26	15.7	2	1.3	23	6.9	1	0.3
Venereal diseases	8	4.8	6	3.9	10	3.0	3	1.0
Neoplasms	2	1.2	5	3.3	6	1.8	2	0.6
Allergic diseases (asthma)	5	3.0	6	3.9	18	5.4	3	1.0
Diseases of endocrine system	12	7.2	6	3.9	26	7.8	12	3.8
Diseases of metabolism (obesity)	18	10.8	15	9.9	83	25.0	46	14.7
Diseases of blood and blood-form- ing organs	—	—	1	0.7	3	0.9	—	—
Diseases of central nervous system	11	6.6	5	3.3	30	9.0	18	5.7
Diseases of eye	14	8.4	5	3.3	18	5.4	6	1.9
Diseases of ear	19	11.4	11	7.2	27	8.1	15	4.8
Heart diseases	53	31.9	22	14.5	77	23.2	57	18.2
Hypertension	69	41.6	42	27.6	210	63.3	113	36.1
Diseases of vascular system	12	7.2	9	5.9	40	12.0	46	14.7
Diseases of respiratory system	20	12.0	8	5.3	21	6.3	6	1.9
Diseases of digestive system	33	19.9	22	14.5	38	11.4	34	10.9
Diseases of urinary system	10	6.0	2	1.3	9	2.7	2	0.6
Diseases of genital system	5	3.0	1	0.7	5	1.5	5	1.6
Diseases of skin	3	1.8	2	1.3	11	3.3	8	2.6
Diseases of organs of movement	37	22.3	23	15.1	92	27.7	49	15.7
Malformations	2	1.2	1	0.7	6	1.8	2	0.6
Invalidity following accidents	17	10.2	7	4.6	13	3.9	11	3.5

In both samples, and among both men and women, hypertension was the most common disease. This naturally was due to the way hypertension was defined. It is clear from the definition page 200 that hypertension here was interpreted fairly broadly. After this followed heart disease and diseases of the organs of movement among men, while in women diseases of the organs of movement and obesity were both more common than heart disease. As number 4 among men there followed diseases of the digestive system. Tuberculosis came high on the list for male, but far down for female paupers. Diseases of the vascular system, that is mainly varicose veins, were on the contrary, very common among women, but came far down on the list for men. Other differences were that diseases of the respiratory system and invalidity due to accidents came considerably higher on the list for men than for women.

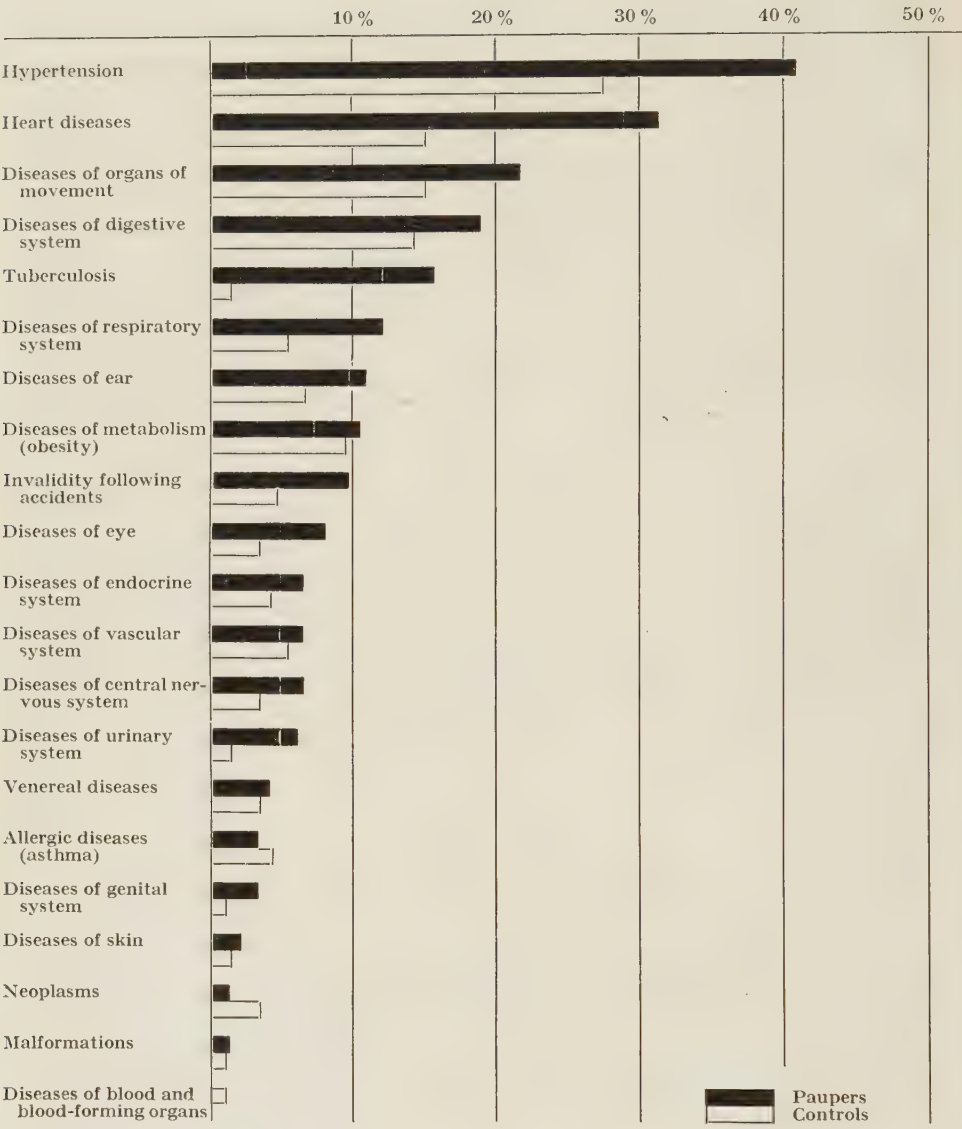


DIAGRAM 3. Prevalence of various groups of physical diseases among men.

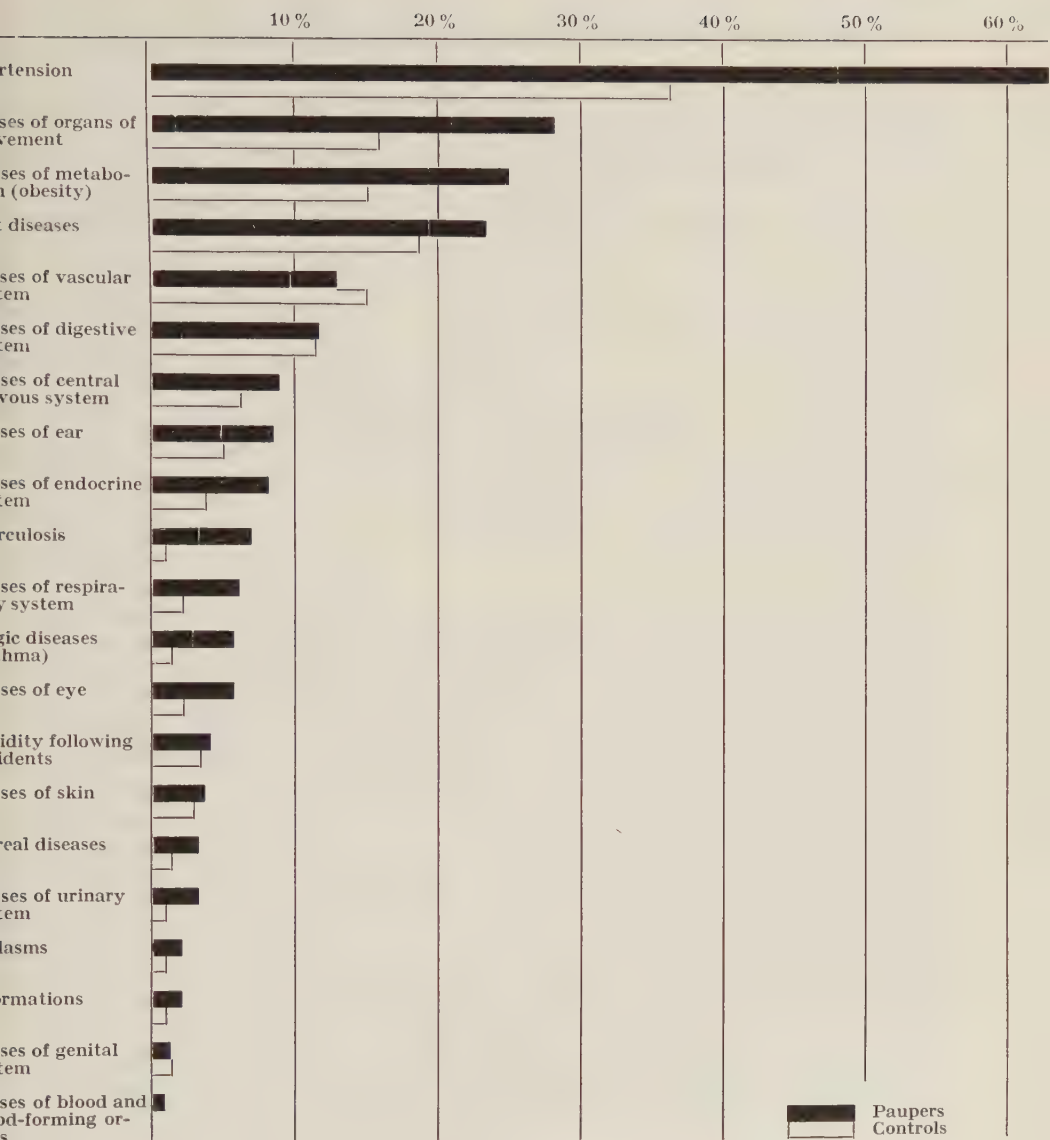


DIAGRAM 4. Prevalence of various groups of physical diseases among women.

TABLE 28. *Number of diagnosis among persons suffering from physical diseases.*

No. of physical diagnoses	Men		Women	
	Paupers <i>n</i> = 151	Controls <i>n</i> = 101	Paupers <i>n</i> = 298	Controls <i>n</i> = 226
One	25.2	35.6	22.1	41.2
Two	29.8	40.6	29.5	28.3
Three	20.5	11.9	27.5	15.5
Four	13.9	7.9	14.1	9.7
Five	6.6	3.0	4.4	2.7
Six or more	4.0	1.0	2.3	2.7
Mean	2.6 ± 0.11	2.0 ± 0.17	2.6 ± 0.07	2.1 ± 0.08
Difference	$0.6 \pm 0.20^{**}$		$0.5 \pm 0.11^{***}$	

Many groups of diseases were only represented by a few cases. This should be seen in the light of the selection of illnesses which were studied in this survey. Many diseases of trivial character or short duration were not included, others were not sought as a routine procedure. The latter fact explains the minor position of, for instance, diseases of the genital organs and of the blood.

Most groups of diseases were considerably more common among paupers than the controls. Particularly striking was the large difference in the prevalence of tuberculosis. For some diseases the difference was rather unimportant, for instance for diseases of the digestive system and of the vascular system for both sexes and for obesity among men and invalidity following accidents among women.

The prevalence of disease in the controls agrees on the whole with the results of other sickness surveys. In these the most common illnesses have generally been rheumatic diseases, heart diseases and hypertension (cf. Cohn & Ling 1950, the Health Survey in Stockholm and others). On account of divergent principles of classification comparison between different sickness surveys is rather difficult.

Most of the examinees suffered from more than one disease at the medical examination (see table 28). The number of diagnoses in the sick examinees was less for the controls than for the paupers, which suggests that the condition of the former was less complicated than that of the paupers.

TABLE 29. *Prevalence of main physical diseases.*

Diagnosis	Men		Women	
	Paupers <i>n</i> = 151	Controls <i>n</i> = 101	Paupers <i>n</i> = 298	Controls <i>n</i> = 226
Tuberculosis	16.6	2.0	7.0	—
Venereal diseases	4.0	2.0	1.0	0.4
Neoplasms	2.0	5.0	2.3	2.2
Allergic diseases (asthma)	2.0	4.0	5.0	2.7
Diseases of endocrine system	3.3	2.0	3.0	2.7
Diseases of metabolism (obesity)	—	4.9	1.0	0.9
Diseases of blood and blood-forming organs	—	—	0.3	0.9
Diseases of central nervous system	4.6	3.0	5.0	5.3
Diseases of eye	4.0	2.0	1.3	1.8
Diseases of ear	1.3	1.0	1.7	2.2
Heart diseases	20.5	18.8	15.1	19.5
Hypertension	4.6	10.9	20.1	25.2
Diseases of vascular system	—	2.0	3.4	4.0
Diseases of respiratory system	1.3	4.0	1.7	2.2
Diseases of digestive system	5.3	12.9	3.4	3.5
Diseases of genito-urinary system	4.0	1.0	1.3	0.9
Diseases of skin	0.7	1.0	0.3	4.4
Diseases of organs of movement	14.6	15.8	18.5	11.9
Malformations	—	—	1.0	0.4
Invalidity following accidents	6.6	5.9	4.7	3.5
Diagnosis or main disease uncertain	4.6	2.0	2.7	4.4

In most cases a main disease could be distinguished, here defined as the illness which in the long run has been the greatest handicap. The distribution of the various main diseases is of some interest, since it shows which group of diseases has the greatest social importance among paupers. In the general population represented by the controls, the most frequent of the main diseases among men were disease of the heart, and after that, in order of frequency, diseases of the organs of movement, diseases of the digestive system and hypertension; these diseases occurred in 10–20 per cent of the sick persons (see table 29 and diagram 5). After that followed invalidity due to accidents, tumors, obesity, allergic diseases (i.e. asthma) and diseases of the respiratory system, all in about 4–5 per cent of the cases. Other categories of disease were uncommon. Among paupers also diseases of the heart were most common (see diagram 6); tuberculosis came second, however, and then diseases of the organs of movement. These three groups dominated

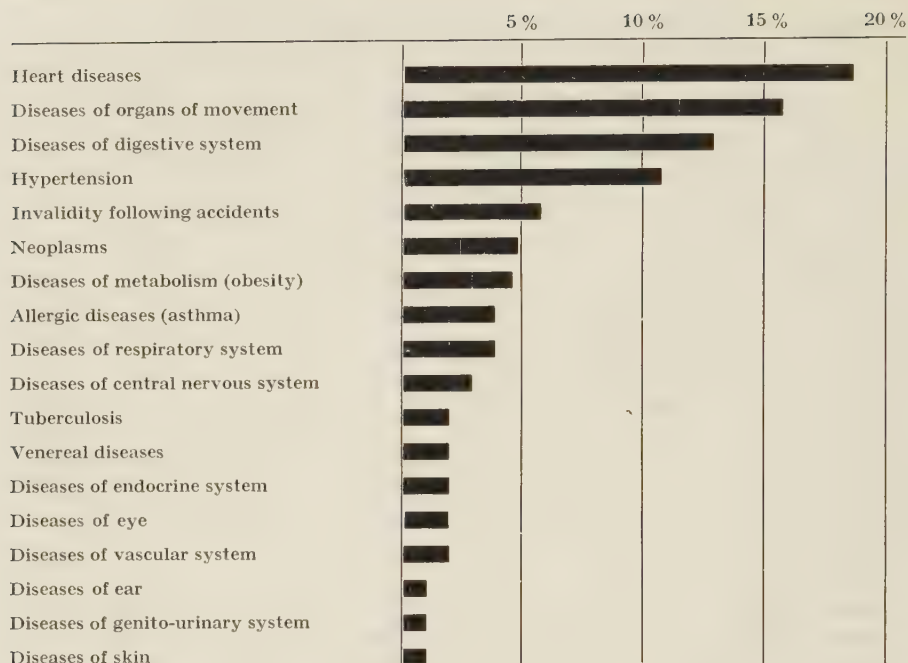


DIAGRAM 5. Prevalence of main physical diseases among male controls.

completely with 15–20 per cent of the cases each. On the other hand diseases of the digestive system and hypertension came a long way after, with invalidity due to accidents, venereal diseases, organic diseases of the nervous system, eye diseases and diseases of the genito-urinary system, together occurring in about 4–6 per cent of the cases.

This difference in distribution is probably mainly due to the fact that severe cases of illness dominated among paupers, while among the controls there occurred also many trivial cases. Relatively mild groups of diseases as hypertension and certain diseases of the digestive system, therefore, played a more prominent role for the controls than for the paupers. In addition less widespread but in themselves serious diseases, as tumors, asthma, emphysema etc. played a comparatively important role among the controls. Among the paupers, on the other hand, they played a more modest part in competition with many other serious diseases.

Among women hypertension, heart diseases and diseases of the organs of movement were dominant among the main diseases (see

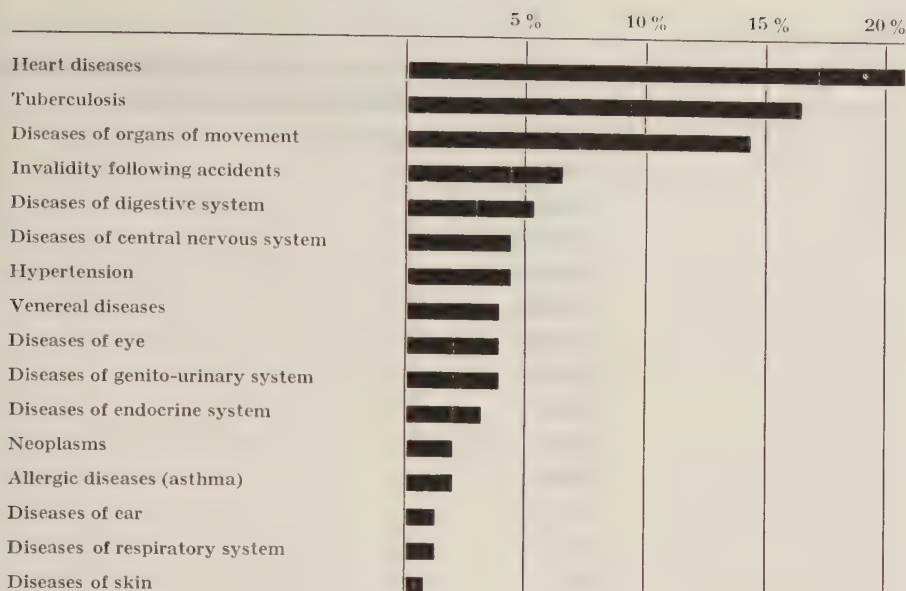


DIAGRAM 6. Prevalence of main physical diseases among male paupers.

TABLE 30. *Prevalence of somatic illnesses at the medical examination, number of cases admitted to general hospitals during 1934–1943 inclusive and the number of deaths during 1944–1950 inclusive.*

Sample	No. ex- am- ined	whereof ill at medical examination			whereof ad- mitted to gener- al hospitals 1934-1943			All cases	whereof died 1944-1950			Expected no. deaths 1944-1950
		No.	%	χ^2	No.	%	χ^2		No.	%	χ^2	
<i>Men</i>												
Paupers .	166	151	91.0	27.5***	96	57.8	12.3***	166	55	33.1	17.1***	23 ± 4.3
Controls .	152	101	66.4		57	37.5		165 ^a	22	13.3		
<i>Women</i>												
Paupers .	332	298	89.8	31.4***	150	45.2	27.1***	334	51	15.3	15.1***	30 ± 5.1
Controls .	313	226	72.2		79	25.2		332 ^b	19	5.7		

^a One moved before 1951, but was unknown in the municipality to which he moved.

^b Two emigrated before 1951.

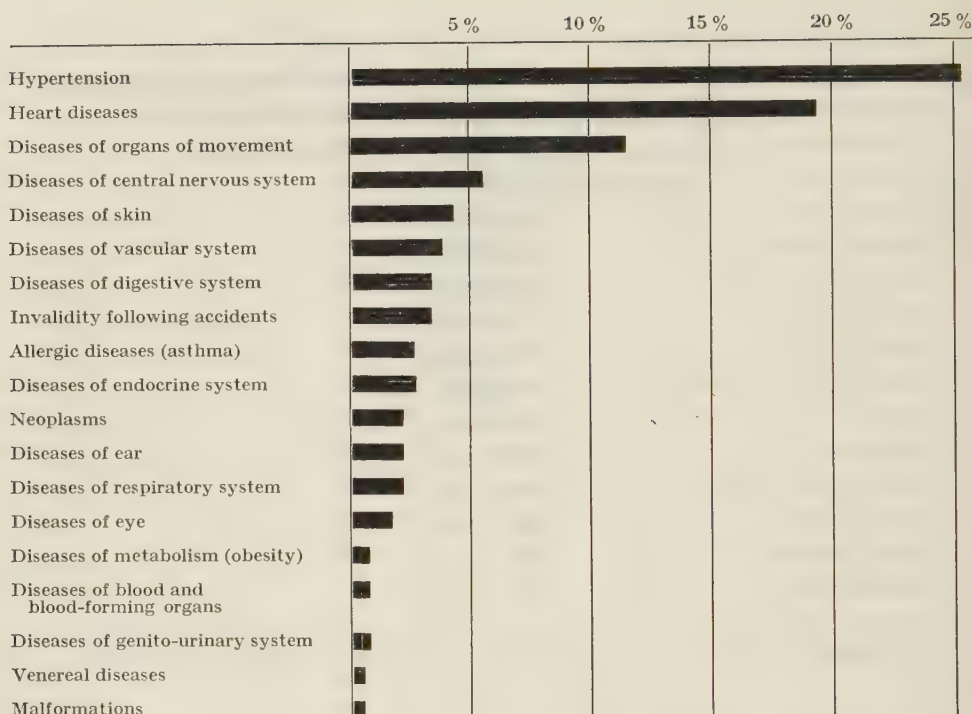


DIAGRAM 7. Prevalence of main physical diseases among female controls.

diagram 7 and 8). This applied to both samples. The dominant position of hypertension among the female paupers indicates that the cases must have been less severe than among the men. Among the female controls organic diseases of the nervous system, varicose veins and diseases of the skin followed in 4–5 per cent of the cases each. Among paupers on the other hand, tuberculosis followed with 7 per cent, and after that asthma and organic diseases of the nervous system.

It then appears from this analysis that a limited number of illnesses dominated the picture completely from the point of view of social medicine.

TOTAL MORBIDITY FOR PHYSICAL ILLNESS

The morbidity for physical illness in both samples is shown in table 30. About 90 per cent of paupers and 70 per cent of the controls were physically ill at the medical examination. The difference was so large that it could hardly be due to a less thorough examination of the controls

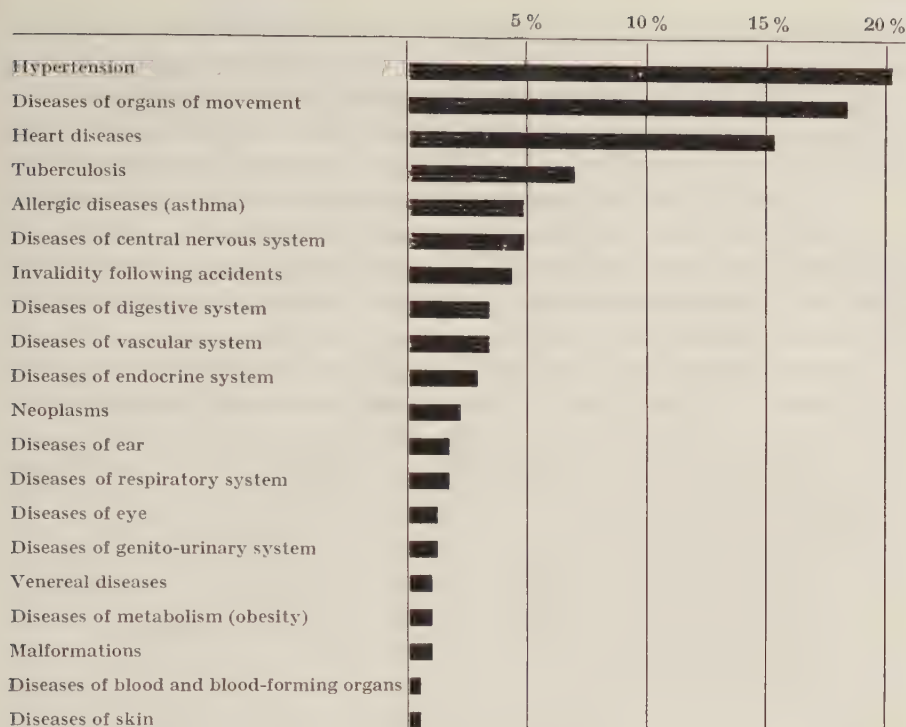


DIAGRAM 8. Prevalence of main physical diseases among female paupers.

in certain cases. Possibly the differences between the samples were less than expected, morbidity in the control material perhaps seems surprisingly high. Most of the persons examined, however, were rather old. Most people suffer from some aches and pains when they grow old. In sickness surveys of the general population which have been undertaken in various places, fairly high ratios of illness have usually been found. In a survey in Hagerstown about 20 per cent were found to be ill in the 50–54 age-group (Sydenstricker 1933). In a subsequent survey in Hagerstown 28 per cent were found to be ill at the age of 50, 35 per cent at 60 and 47 per cent at 70 (Lawrence 1948). In the Baltimore survey there were about 20–30 per cent who were sick at the examination (Collins *et al.* 1950). In the Canadian Sickness Survey on one given day—the day the survey began—it was found that 12 per cent were ill in the 45–49 age-group and 19 per cent in the age-group 65 and over (Kohn 1956). In the Danish sickness survey it was found that in the age-group 40–59 35 per cent of the men and 49 per cent of the women

had been ill during the past month; at 60 and over the figures were 50 and 62 per cent respectively. At the Health Survey in Stockholm it was found that 78 per cent of men and 83 per cent of women had some ailment or deformity. Adjusted to the same age distribution as in the samples, this would be no less than 87 per cent of men and 90 per cent of women. Even so it was considered with certainty to be a question of minimum figures. It was, however, to some extent a question of illnesses of relatively little importance, and in some cases the individuals had had no inconvenience at all from their illness (cf. spondylarthrosis deformans, page 223).

These examples show that the results of the different surveys differ very greatly. This is related to some extent to the age distribution, but also to how the concept of disease is defined. The decisive factor therefore is that, with identical principles of assessment, there was a considerably higher frequency of morbidity among paupers than in the sample which, with the reservations already mentioned (page 106), represented a comparable section of the general population as regards sex, age, marital status, family type and, to some extent, social strata.

Rülcker found in his analysis of 2086 paupers in Stockholm, that 90 per cent of the men and 86 per cent of the women were ill. He included here mental disorders (found in 13 per cent of the men and 16 per cent of the women). Physical illness would then have been present in about 76 per cent of men and 70 per cent of women, possibly in somewhat more, since some of those with mental disorders might also have suffered from physical illness. This was not shown in the tabulations since only the main diagnosis were included. These frequencies were somewhat lower than in the present survey. This is natural. Rülcker's survey included all persons on relief, the present survey a selection of permanent paupers among whom the sick must reasonably be expected to be over-represented. Rülcker pointed out, also, that his frequency must have been a minimum figure, since only about 37 per cent of the cases received a medical examination. It is impossible to say whether the distinction between health and sickness was drawn in different ways in the two surveys.

Teilmann's survey also concerned persons who had been on relief a rather long time (at least 8 months during 1944). Of the men 78 per cent and of the women 83 per cent were ill. The Danish paupers, however, were somewhat younger than the Swedish. After adjustment to the same age distribution as in the Swedish relief material, 80 per cent of the men and 87 per cent of the women in Teilmann's material would

have been ill. The difference is therefore not very large. Also persons with a disablement pension were eliminated from the Danish material. It is possible that the dividing line between health and illness was drawn in different ways in the two surveys. Also there may have been some differences in the pauper population in the two countries, related, for instance, to differences in the administration of relief.

The total morbidity in the two samples showed only small differences between the sexes, which appeared to be fortuitous. Morbidity for single paupers was almost as high as for those who were married or cohabiting. For the control cases, on the other hand, it was somewhat lower among the latter, mainly on account of the lower morbidity for the younger control cases (see table III).

Table 30 shows the number of admission to general hospitals during the ten year period prior to December 31, 1943. They were far more numerous for the paupers than for the controls, which is a sign of the higher morbidity in the former group. The difference between single and married or cohabiting persons was inconsiderable (cf. table III), and can therefore be ignored in comparisons between the sexes. In both samples there were more men than women admitted to hospital (χ^2_c for paupers = 6.59*, for controls = 6.85**), which confirms the tendency to more severe illness for men, as noted previously.

In table 30 the number of deaths up to the end of 1950 is also included. In both sexes there were far more deaths among the paupers than among the controls. There was no marked difference in mortality between single and married or cohabiting persons. For the sake of comparison the expected mortality in both samples during a given seven year period has also been calculated.

Here the following method was employed. The material was divided into the age-groups 16-20, 20-25, 25-30 ... 60-65 and 65-67 at the time of selection. The class midpoints were then 18, 22.5, 27.5 ... 62.5 and 66 years. It was assumed that all cases in the respective age-groups were at the class midpoint. The mortality risk for seven years was calculated for each individual from formula 14, page 51. For $p_1, p_2, p_3 \dots$ the mean mortality risk for Stockholm for the years 1941-1950 was inserted (see the Statistical Year Book of Stockholm 1955, table 50) for seven consecutive years. Thus the ten year period 1941-1950 has been made to represent a seven year period 1944-1950. Since mortality is falling this is considered to give a somewhat excessive mortality. The expected increase for the paupers would thus appear somewhat too small. For the class midpoints 22.5, 27.5 etc. the means of the mortality risks for the years 22 and 23, 27 and 28 etc. were taken. The expected number of deaths was then obtained from formula 15 and the standard error from formula 16.

It was found that for the male paupers there was a considerable and significant increase in mortality, while the male controls did not deviate at all. Increased mortality was also demonstrated for the female paupers. The female control cases on the other hand had a lower mortality than expected. The deviation was, however, not significant. The fact that the mortality for male paupers was raised more than for female paupers (although the prevalence of illness was about the same) indicates a marked accumulation of severe cases of illness in the male paupers.

CHAPTER 8

DISABILITY

INTRODUCTION

A survey of exclusively the prevalence of various illnesses within a population does not give a complete picture of the health situation. The severity of the illnesses is also of importance. Estimates may be based on different factors, for instance the course of the illness and the lethality, the degree of discomfort and suffering, confinement to bed, disability and so on. The effect of illness on the patient's ability to work is in some ways the most important immediate social consequence of an illness. In this survey, therefore, the severity of an illness has been estimated on the basis of the resulting disability.

The grading of the capacity for work is a hazardous procedure. Disability is almost always a relative concept, and varies according to education, the nature of the work, working conditions and so on. In concrete cases it may be necessary to make a thorough job-analysis and also detailed tests of physical fitness in order that a reliable estimate of ability to work may be made. In a recent survey of the physical capacity for work in timber and foundry workers, power of achievement, for instance, was measured with a cyclometer with simultaneous registration of changes in pulse frequency and blood pressure (Edlund & Lundgren 1957). Teilmann, who discussed these questions in detail, points out that it is fairly easy to decide the degree of disability in some defects, for instance the loss of an arm or leg, reduced mobility of certain joints, impaired sight, and so on. Even in such cases, however, a large part is played by previous occupation, age, energy and mental qualities generally. In internal illness estimates are more difficult. In heart disease it may be possible, through tests of function, to get some idea of how well an individual can tolerate physical activity. But in many internal diseases the affected organ does not play a direct role in the actual output of work. The capacity for work is then related to the effect of the illness on the general condition and on its causing fatigue. In other instances it may be pain which causes disability. Fatigue and pain are, however, subjective symptoms which cannot be

measured. In such cases one is mainly dependent on the information from the patients themselves. Teilmann points out that the general medical experience of the nature of the various diseases and their effect on capacity for work is of assistance in forming an estimate here. In addition many illnesses, as for instance heart disease, are aggravated by work. Ability to work in the medical sense is therefore by no means synonymous with what the patient is able to do if he tries. It may be necessary to denote a person as disabled even if the immediate output of work is good. Sometimes certain operations may be injurious, for instance in eczema. In such cases the patient's ability to work is considered to be affected if, in his ordinary work, he is exposed to substances which provoke eczema.

Teilmann also points out that in some diseases, for instance migraine, no anatomical or functional defect can be demonstrated. The effect of such illnesses on capacity for work is particularly difficult to estimate. One is dependent to an even greater extent than in other illnesses on general medical experience and the total impression of the patient in his environment.

When there are so many factors to be taken into consideration in the estimation of disability, it is not surprising that no special scale has been constructed for this purpose. None the less every doctor is in practice forced to make such a gradation, for instance in giving prescriptions, and in certificates of different kinds. In this survey a rating procedure has been followed in which all the material on the condition of health has been used as a basis. At the medical examination a rough assessment of ability to work was made in accordance with the norms which are usually followed in medical practice. These cannot be generalized since they vary from illness to illness. Consideration was also given to the examinee's own estimation of his capacity for work (naturally keeping in mind that this could be highly subjective). Other information that came in often contained matter of great value in assessing disability, for instance certificates and reports from hospitals or general practitioners. In connection with previous hospitalization or after a patient had been referred to a specialist, tests of function were carried out in some cases, for instance in cardiac insufficiency. Direct practical testing of ability to work could not generally be carried out, but reports from social workers, employers, or relatives sometimes described in detail what the individual could accomplish in concrete situations.

Disability is dependent on both mental and physical conditions. In

this survey an attempt has been made to estimate the effect on the ability to work of the physical and mental factors separately. By physical capacity for work I have denoted, like Teilmann, the output the patient should have had if he had been normal mentally; and in the same way by mental capacity for work is meant the output he should have been capable of if he had been physically healthy. Such concepts are, of course, as Teilmann also stressed, abstractions. It is impossible also to test the functions, since in practice one cannot ignore either mental or physical resources. Despite these difficulties, however, it is of practical value to attempt to carry out such a distinction.

It is clear that estimations of this type must be very summary. It is not impossible that mistaken ratings have been made. In some types of cases my assessment may have diverged systematically from what other investigators would have found. The absolute frequency figures have, however, been considered of relatively limited value. It is in the first place the difference in disability between the two samples which is of interest. As far as one can see there is no reason to believe that systematic errors of rating would have affected the two materials differently.

Teilmann followed a four-grade scale in his estimations. Here a five-grade scale has been used.

By "no disability" is meant that a person could, without hardship, produce a normal output of work.

By "some disability" is meant that the individual was not quite in a position to manage his ordinary duties but could produce a reasonable output, and for instance, after transfer to lighter duties could work fairly well.

By "pronounced disability" is meant such a high degree of disability that the output of work was inadequate even if the individual was transferred to lighter work.

By "almost complete disability" is meant that an individual could only help with very light duties. Generally it was duties in the home, since no other work was available. If the condition was permanent, individuals in this category were entitled to a pension.

Finally "complete disability" denotes that the individual was unable to do any work at all, not even in the home.

In most cases such a rough rating of disability did not present any difficulty.

In the statistical treatment the different grades of disability have been regarded as class midpoints in a continuum (cf. Guilford 1950 and Segerstedt & Lundquist 1952). In this way the problem could be subjected to quantitative statistical treatment.

ESTIMATION OF DISABILITY WITH REGARD TO DIFFERENT FACTORS

The grading of the disability which could be attributed to mental factors was rather difficult, since most of the patients were very handicapped physically. Only a rough and summary rating could be made. The paupers showed a considerable displacement to higher disability grades as compared with the controls (see table 31). Among men only 27 per cent of the paupers had no disability compared with 76 per cent of the controls; among women the figures were 51 and 84 per cent respectively. Complete disability on the other hand was not so frequent in the samples. The difference was mainly due to the fact that more of the paupers than of the controls suffered from mental disorders.

In order to find the degree of severity of illness in the samples the mean disability in various mental disorders was investigated. For this the few cases of psychosis, oligophrenia and "cerebral disease" in accordance with the definitions given previously, were grouped together. For other mental disorders there were only insignificant differences in the mean disability. They could therefore also be treated together. In both these groups of mental disorders the mean disability was greater for the paupers than for the controls. The number of cases with psychosis, oligophrenia and "cerebral disease" was, however, so small that the differences could have been fortuitous. The comparison seemed to justify the conclusion that the paupers not only suffered more often from mental disorders than the control cases, but also that the sick paupers were, on the average, more seriously ill than the corresponding controls.

As was expected, the more severe mental disorders (psychosis, oligophrenia and "cerebral disease") caused greater disability than other illnesses. Thus it was in the first place such conditions which resulted in total or almost total disability.

Even with regard to physical illness there was a marked displacement to greater disability among the paupers than among the controls. In the paupers there were only 15 per cent of the men and 17 per cent of the women who had no disability, among the controls on the other hand, 59 per cent of the men and 46 per cent of the women had no disability. Among paupers 61 per cent of the men and 29 per cent of the women had almost complete disability, among the controls, on the other hand, it was only 8 and 7 per cent respectively.

TABLE 31. *Disability in the whole samples and different groups estimated with regard to mental and physical factors separately and together.*

Sample and sex P = Paupers C = Controls	No. of cases graded for disability	whereof					Mean disability	Difference
		no dis- abil- ity	some dis- abil- ity	pro- nounc- ed dis- abil- ity	al- most com- plete dis- abil- ity	com- plete dis- abil- ity		
<i>Regarding mental condition</i>								
<i>Whole sample</i>								
Men: P	148 ^a	40	52	20	23	13	2.6 ± 0.11	1.0 ± 0.14***
C	144	109	20	8	3	4	3.6 ± 0.08	
Women: P	323	166	76	61	15	5	3.2 ± 0.06	0.6 ± 0.07***
C	310 ^b	260	35	8	4	3	3.8 ± 0.04	
<i>With psychosis, oligo- phrenia and cerebral diseases</i>								
Men: P	29 ^c	—	3	5	14	7	1.1 ± 0.17	0.3 ± 0.42
C	9	—	2	2	3	2	1.4 ± 0.38	
Women: P	31	3	2	13	9	4	1.7 ± 0.20	0.5 ± 0.55
C	9	2	3	1	1	2	2.2 ± 0.51	
<i>With other mental dis- eases</i>								
Men: P	90 ^d	11	49	15	9	6	2.6 ± 0.11	0.6 ± 0.18***
C	50	24	18	6	—	2	3.2 ± 0.14	
Women: P	177	48	74	48	6	1	2.9 ± 0.06	0.3 ± 0.12**
C	72	29	32	7	3	1	3.2 ± 0.10	
<i>Regarding physical condition</i>								
<i>Whole sample</i>								
Men: P	166	24	18	23	45	56	1.5 ± 0.11	1.7 ± 0.14***
C	148 ^e	87	28	21	6	6	3.2 ± 0.09	
Women: P	333 ^f	57	59	119	70	28	2.1 ± 0.06	1.0 ± 0.08***
C	310 ^g	143	86	59	13	9	3.1 ± 0.06	
<i>With physical diseases</i>								
Men: P	151	9	18	23	45	56	1.2 ± 0.10	1.6 ± 0.16***
C	97 ^e	36	28	21	6	6	2.8 ± 0.12	
Women: P	298	22	59	119	70	28	1.9 ± 0.06	0.8 ± 0.09***
C	223 ^g	56	86	59	13	9	2.7 ± 0.07	
<i>Regarding both physical and mental condition</i>								
Men: P	165	6	16	26	57	60	1.1 ± 0.09	2.0 ± 0.13***
C	147	78	32	21	8	8	3.1 ± 0.10	
Women: P	333	39	45	141	76	32	1.9 ± 0.06	1.2 ± 0.08***
C	310	137	88	60	15	10	3.1 ± 0.06	

^a In 5 cases disability could not be graded although the diagnosis was established. ^b In 5 cases disability could be graded although the cases were not completely investigated psychiatrically. ^c In 2 cases disability could not be graded. ^d In 3 cases disability could not be graded. ^e In 4 cases disability could not be graded. ^f In 1 case disability could be graded although the case was not completely investigated somatically. ^g In 3 cases disability could not be graded.

It may be pointed out that Teilmann, in his survey of Danish paupers, obtained rather different values for disability. 32 per cent of the men and 27 per cent of the women had no disability, that is more than in the present survey. It is possible that different unofficial scales were used in the evaluation of disability in the two surveys. If this were the case the demands for a diagnosis of no disability would in the present survey have been more strict than in Teilmann's survey. The most probable explanation is, however, the situation mentioned earlier, that persons with disablement pensions were not included in the Danish material, while they form a considerable part of the paupers in the Swedish survey. There is thus a real difference in the two materials; in addition the average age of the Danish paupers was somewhat lower. The situation illustrates, however, the risks involved in comparing the results of surveys when the basis of estimations are not strictly objective and the functions cannot be directly measured.

Among those who were ill disability was greater for paupers than for the controls. Thus severe cases of illness were more frequent among the former. It would also have been of interest to study the effects of the various diseases on ability to work. Most of the diseases, however, were only represented by a few cases, and often in combination with other illnesses. No such investigation could, therefore, be carried out.

If disability is judged in the usual way, that is in consideration to both the mental and physical conditions, which was far easier, there were only 4 per cent of the men and 12 per cent of the women on relief who had no disability. About half of the controls had no disability. 25 per cent of the male and 27 per cent of the female controls had pronounced disability, but this occurred in no less than 87 per cent of the male and 75 per cent of the female paupers.

Comparison of disability in the two samples thus showed even more clearly than the prevalence of illness of which an account has already been given, the great mental and physical handicap which characterizes long-term paupers. It was also striking how large a part of the paupers was partially disabled. If one includes here persons with "some" and "pronounced" disability 25 per cent of the male and no less than 56 per cent of the female paupers were partially disabled, a circumstance of considerable interest in the shaping of public assistance measures.

Disability in a sample of the general population is, to a certain extent, a function of age. In the age-groups 16-40 15 per cent of the male controls had some disability; in the age-group 60 and over it was 63 per

cent (cf. table IV). For the female controls the corresponding frequencies were 7 per cent and 72 per cent respectively. Thus among older persons there was usually some disability, however generally of only a mild degree. Complete disability in the age-group 60 and over occurred in 7 per cent of the male and 5 per cent of the female controls.

In the paupers, on the other hand, there was a large number of disabled persons in all ages. Even here, however, there were signs of a further deterioration with advancing age. Most of those with no disability were thus under 50.

COMPARISON BETWEEN MALE AND FEMALE PAUPERS

Among the paupers the men had throughout higher mean disability than the women. Both regarding mental and physical conditions the difference between the sexes was $0.6 \pm 0.13^{***}$. If consideration were taken to both factors together the difference increased to $0.8 \pm 0.11^{***}$. If a comparison is made of the mean disability for the sick persons only, similar differences are obtained: for physical illness $0.7 \pm 0.12^{***}$; for psychoses, oligophrenia and "cerebral diseases" $0.6 \pm 0.26^*$; for other mental disorders $0.3 \pm 0.13^*$. Illness was thus more severe, and caused greater disability among men than women. It has already been demonstrated that certain severe diseases, as, for instance, tuberculosis, heart disease and invalidity following accidents or illness, were more frequent among men than women. Considerably more men than women, also, were classified as completely disabled (36 and 10 per cent respectively).

Among the controls, on the other hand, the mean disability regardless of the basis of the estimations, was about the same for both sexes. Rather more, however, were denoted as having no disability among men than in women. This applied particularly to the physical condition. If both mental and physical factors were taken into account 53 per cent of the men and 44 per cent of the women had no disability ($\chi^2_c = 2.80$). There were instead somewhat more partially disabled women. It is difficult to say what the cause of this is. It may have been pure chance. The differences are, however, not greater than that they could be related to the difficulties in grading disability according to an identical scale for men and women. The difference in this case would be an expression of a tendency to estimate the disability of women higher than that of men. The difference could also be due to an actual difference in disability in the sexes. If this were so, disability in women

would be somewhat more easily brought about than in men. The prevalence of physical illness was a little higher among the female controls than among the male controls (however not significantly so, cf. table 30), while the contrary was the case regarding the prevalence of mental disorders (see table 18).

The small differences between the sexes in the control material and the large differences in the relief material indicates that the latter can hardly be due to any systematic difference in estimating disability in the two sexes. It seems therefore, that male paupers were far more severely handicapped than female paupers both physically and mentally, or, in other words, women receive relief with less pronounced disability than men.

A possible explanation might be that more men than women were married or cohabiting and that the wife took over the duty of maintaining the family if her husband was ill and could not manage to support the family alone. As long as the husband did not have a high degree of disability the family was able to put off seeking help. The difference between the sexes was, however, equally marked, whether the comparison related to single or married and cohabiting persons, and regardless of the age-group to which the comparison referred (in the extent to which the number of cases in the different groups was sufficiently large to permit comparisons of these kinds, cf. table III).

In order to test this hypothesis an attempt has also been made to estimate the health conditions of the partner at the time of the examination. Details have generally been obtained from the examinee, only in a small number of cases has the other partner been interviewed. Information is therefore sometimes lacking, particularly in the case of cohabiting couples. Here it was not always possible to make very detailed inquiries at the interview. Capacity for work has been broadly classified according to a three grade scale. The result is shown in table 32.

The wives of paupers had worse health than the wives of the controls. The difference was large for disability. 64 per cent of the former and only 29 per cent of the latter had some disability. Even men married to, or cohabiting with, women on relief seemed to be more often ill than men married to, or cohabiting with, female controls. The number of cases was, however, small, and the result therefore unreliable.

Many of the wives of the paupers were thus also ill. Therefore they could hardly have taken the place of the wage earner to any great extent. This cannot therefore explain why women receive support

TABLE 32. *Prevalence of illness and capacity for work in the partners.*

Sample	Physical health				Mental health				Capacity for work				
	Heal- thy	Ill	χ^2_c	No in- for- ma- tion	Heal- thy	Ill	χ^2_c	No in- for- ma- tion	Good	Red- uced	Dis- abled	χ^2_c	No in- for- ma- tion
<i>Partners of</i>													
male paupers	31	47	4.09*	5	42	35 ^a	2.08	6	29	36	15	24.19*** d.f. = 2	3
male controls	42	31		14	53	26 ^b		8	55	21	1		10
<i>Partners of</i>													
female paupers	14	13	1.11	6	16	10 ^c	1.19	7	12	6	8	6.34*	7
female controls	22	10		12	25	7 ^d		12	26	2	4		12

^a Whereof epilepsy 1 case, dementia following cerebral hemorrhage 1 case. Others described as psychic insufficiency or abnormality. Among these alcoholism had previously occurred in 1 case, puerperal psychosis in 1 case and confusion in 1 case. Debility occurred in at least 9 cases (3 of these classified as healthy in the table).

^b Whereof presenile paranoia with hallucinations in 1 case, chronic alcoholism 1 case. The others psychic insufficiency or abnormality. Debility 2 cases.

^c Whereof chronic alcoholism 6 cases. The others psychic insufficiency. Debility 3 cases.

^d Whereof chronic alcoholism 2 cases. The others insufficiency or abnormality. Previous psychosis with paranoid symptoms 1 case. There was no information regarding debility in any of these cases.

with less disability than men. On the contrary, the greater maintenance burden borne by the men should lead to the reverse situation. Several different explanations might be possible. Partially disabled men may have less difficulty than partially disabled women in managing without economic help from society. Particularly for elderly, handicapped women the opportunities of obtaining work are probably very restricted. Many women who get into difficulties (for instance those recently widowed and divorced) may have trouble in adjusting themselves to gainful employment, particularly if they have been out of work for many years. They may have a greater tendency to turn to social assistance organisations than men; it is also possible, that they are treated more benevolently by the social welfare officers than men with similar physical or mental handicaps.

In Teilmann's survey a similar situation could be demonstrated. The difference between men and women was, however, less, and could

have been fortuitous, except that "the completely disabled" cases in his investigations were clearly more numerous in men than in women. This difference between the two surveys can hardly be due to methods of grading. The higher degree of disability among the Swedish paupers thus refers particularly to men.

SUMMARY AND CONCLUSIONS

In this report are given the results of a survey of the mental and physical illness of the permanent pauper population of Stockholm.

The Problem (Chapter 1)

1. It is widely known that there is a connection between illness and various social conditions. Total mortality and morbidity have thus always been highest in the lower strata of society. There is, however, a mutual interdependence. Sick persons, who can no longer work, easily become impoverished. Poverty, on the other hand, often involves social difficulties, which may increase the risk of illness and delay recovery.

2. The relationship with different social conditions is, however, highly varying. Some illnesses show no obvious connection. A number of illnesses are, according to various investigations, more frequent in the lower social strata (e.g. tuberculosis, bronchitis, pneumonia, ulcer of the stomach, certain forms of malignant neoplasm, valvular disease of the heart, myocarditis, hernia, rheumatism etc.). Others, on the other hand, have usually been found to be more frequent in the higher strata of society (e.g. diabetes, leukemia, coronary sclerosis, cirrhosis of the liver, cholelithiasis, appendicitis etc.). Also certain mental disorders seem to be more frequent in the poor than in the well-to-do. This applies particularly to chronic alcoholism, possibly also certain psychoses. Most investigators have found an increase in the frequency of schizophrenia in the lower social strata. Manic-depressive psychosis, on the other hand, does not seem to vary to any great extent with regard to social status. Information concerning neurotic conditions is contradictory. Mental deficiency also seems to be more frequent in the lower social strata; this however, has been put in question on account of the many sources of error involved in such investigations.

3. From these surveys no definite conclusions can be drawn on the situation in the pauper population. Direct investigations of paupers have shown, however, that long-term illnesses seem to dominate. Geriatric diseases, diseases of the circulatory system and of the organs of movement seem to be particularly frequent, and, according to some

investigations, tuberculosis also. Mental disorders are also frequent, but it is not fully known which mental disorders are particularly common among paupers.

Method and Material (Chapters 2-5)

4. Sickness surveys may refer to different conditions. One may distinguish between the number of cases that exist at any one time (the prevalence), the number of new cases occurring during a given period of time (the incidence) and the risk of incurring the various illnesses during a lifetime (the risk or expectance). These three aspects give different pictures of the morbidity in a population.

5. Since it is the long-term illnesses in paupers which are of most importance, it is particularly the prevalence of illness which is of interest. The incidence of illness which is dominated by the transient illnesses to quite another extent, is of little interest in this connection. Since even previous illness may be of importance in the development of pauperism the risk of contracting the various illnesses is also of interest. In the present sickness survey, therefore, both the prevalence of illness and the morbidity risks have been investigated. Risk-calculations, however, have only been undertaken where it has been possible to make comparisons with the general population or with other samples.

6. The material comprises 500 paupers in Stockholm in the ages 16-67, who had received outdoor relief for at least 6 months in 1943 through the social welfare offices. The cases were drawn at random from the social welfare records. There were about twice as many women as men. The mean age was about 50 in both men and women.

7. For every pauper a "social twin" who had not received relief during 1943 was drawn at random from the address register of the Census Registration Office. The two series came to show good agreement regarding the distribution of sex and age, and rather good agreement regarding the distribution of family type, marital status and residential area. For occupation the agreement was not completely satisfactory; the control cases, particularly the women, lay somewhat nearer the general population than the paupers did.

8. The examination of the cases included the somatic anamnesis and in as many cases as possible also a physical examination, psychic anamnesis, observation of behaviour, testing with the point scale and Rorschach tests, social interview, home visit, analysis of various documents, information from hospitals and institutions of different kinds,

doctors, schools, employers etc. In certain cases also interviews with social welfare officials, relatives and acquaintances.

9. The selectivity and the various sources of error in the collection of the material have been discussed in detail. Since the survey only refers to a part of the pauper population, generalised conclusions on the situation in the whole pauper population cannot be drawn. Certain weaknesses in the material must also give rise to caution in drawing conclusions, particularly in comparisons with the results of other surveys.

Mental Illness (Chapter 6)

10. In some cases the material collected was not sufficient to allow an estimation of the mental condition. This applied to 8 per cent of the male and 3 per cent of the female paupers, and 13 per cent of the male and 9 per cent of the female controls.

11. A comparison of the extent of mental disorders in the control material and the general population should to some extent illustrate the influence of selection of the samples on the morbidity frequencies. Unfortunately such comparisons are only possible for certain illnesses. For some illnesses corresponding data for the general population is lacking. In addition, the definitions of some diseases are so fluid, and the practice of different research workers so varied, that the results of the various surveys are largely incommensurable.

The extent of some psychosis in the general population is known, however not the ratios for Stockholm. The total frequency of psychoses was, however, possibly somewhat excessive among the male controls. The number of chronic alcoholists, in the medical meaning, and persons abusing alcohol, was also excessive in the male controls. The deviation might be due partly to the selective recruitment from the lower social strata, particularly for the male controls.

No extreme mental deficiency was found among the control cases, which could be due to the fact that such persons are generally unable to manage without help from society.

12. There was a marked excess of schizophrenia among male paupers. The ratio was 5.9 per cent, and if uncertain cases are also included, 7.8 per cent, which far exceeds the ratios in other population surveys. 1.5 per cent of the women had schizophrenia and if uncertain cases were also included, 2.2 per cent; this excess was thus not so large and could have been fortuitous.

Other psychoses were represented by such small numbers that no

definite statement could be made. Most psychoses, were, however, somewhat more frequent among paupers than controls. Altogether psychosis occurred in 13.1 per cent of the men and 7.1 per cent of the women; if previous cases are also included 16.3 per cent of the men and 11.8 per cent of the women had suffered from psychosis. These figures were essentially higher than those in the control material and in sickness surveys of the general population. Also estimations of the total morbidity for psychoses points to a considerable excess in comparison with the general population, anyway for men.

13. A few cases of extreme oligophrenia were met with; most of such cases are probably in custodial care and are therefore removed from the outdoor relief population. The cases occurring here have all lived under great difficulties.

14. For reasons already mentioned (cf. point 11) only occasional comparisons could be made with the situation in the general population regarding other mental disorders.

"Cerebral diseases", by which is meant certain organic diseases of the brain with mental changes, as tumor of the brain, cerebral trauma, cerebral hemorrhage etc., occurred in 6.5 per cent of the male and 1.5 per cent of the female paupers. This exceeded the number of such diseases in the control cases, but not significantly.

Chronic alcoholism occurred in 17.6 per cent of the male and 2.5 per cent of the female paupers which was more frequent than in the control material, and is also far higher than what is known from the available data concerning the general population.

Certain conditions which are classified here as uncertain lesional disorders (schizoid personality, ixophrenia, possible postencephalitic and posttraumatic conditions) were also more frequent in the relief than the control cases, but significantly so only for women.

Mental insufficiency and senility, finally, were also considerably more frequent among paupers than among the control cases.

15. An estimation of the total mental morbidity meets with certain difficulties. For some illnesses fairly reliable frequencies may be obtained, for others, on the other hand, only rather questionable assessments.

In this survey, therefore, a series of frequencies has been recorded. To some certain and well-defined psycho-pathologic conditions more and more diffuse and questionable clinical pictures have gradually been added. As well-defined and severe disorders are reckoned in the first place psychosis, oligophrenia and "cerebral diseases" of

the type exemplified above. Such conditions occurred in 20 per cent of the male and 10 per cent of the female paupers, which far exceeded the prevalence of these diseases in the control material (6 and 3 per cent respectively) and in the general population. If to this is added chronic intoxication, that is above all chronic alcoholism, the ratios rose to 35 per cent for men and 12 per cent for women. If cases of illness whose lesional character may be subject to differing opinions (schizoid personality, ixophrenia, suspected postencephalitic conditions etc.), are also added, the ratios rose to 47 per cent for men and 20 per cent for women. If one also adds a considerable number of cases with, as far as can be judged, only reactive conditions, the figures rose to 71 per cent for male and 54 per cent for female paupers. Some cases also showed clear signs of mental deterioration in connection with advancing age; if these cases are included no less than 82 per cent of the men and 64 per cent of the women would have suffered from mental illness at the medical examination. Some further cases had previously suffered from mental complaints, but had recovered before the medical examination.

Among the controls considerably lower frequencies were found. Severe illnesses as psychosis, oligophrenia and "cerebral disease" occurred in the men in 6 per cent and in the women in 3 per cent of the cases. If to this is added the number of persons with symptoms of chronic alcoholism, schizoid personality, ixophrenia, suspected postencephalitic conditions etc. and also mental insufficiency of various kinds, the ratios increase to 31 per cent for male and 18 per cent for female controls. If, finally, cases are included with marked mental changes due to senility the total morbidity in the control material reached 41 per cent for men and 27 per cent for women.

Considerably more paupers than controls had previously been admitted to mental hospitals.

16. Thus even for the control cases conspicuously high morbidity ratios were obtained. Since the frequencies are partly based on assessments, it is difficult to make comparisons with the results of other sickness surveys, which has been demonstrated already. In some surveys similar or even higher frequencies have been obtained for the extent of various mental symptoms. The large differences in the results of various surveys regarding morbidity for mental illness is probably related, to a great extent, to which symptoms are considered psychopathic in the respective surveys. In addition the control material in the present survey is very selective (with over-representation of elderly persons, principally from the lower social strata). Even if a correction

of the deviating age composition could be made, it would probably be hazardous to draw any conclusions on the situation in the general population from the results presented here.

17. Further, morbidity for mental illness was higher in the male than the female paupers. This was due entirely to the higher prevalence of psychosis, severe cerebral disease and chronic alcoholism in men. Even in the controls it was above all the prevalence of chronic alcoholism, but also the occurrence of more cases of uncertain lesional disorders, which were responsible for the excess morbidity among men. Selective factors may, however, have played some part; bias in the form of certain differences in the assessment of men and women cannot be entirely excluded either.

Physical Illness (Chapter 7)

18. The number of persons interviewed regarding their physical condition was very little lower in the controls than in the paupers. On the other hand far fewer of the control cases were physically examined (30 per cent, compared with 85 per cent of the paupers). The interview data and information from hospitals, outpatient departments and practitioners, however, gave an adequate basis for a medical assessment of all the male and all except 2 of the female paupers (= 0.6 per cent). This data was, however, inadequate in 8 per cent of the men and 6 per cent of the women in the control sample.

19. The prevalence of physical illness in the control group should also be informative regarding the importance which may be assigned to the selection of the sample. For many diseases comparisons could be made with the results of other sickness surveys. For most diseases there is rather good agreement between the morbidity ratio in the control material and the general population. This applies, for instance, to tuberculosis, asthma, thyroid disturbances, diabetes in women, obesity (in any case no marked deviations were apparant), "cerebral diseases", sciatica, varicose veins, ulcer of the stomach and duodenum, hernia, kidney diseases, skin diseases, chronic polyarthrititis (at least in some comparisons), muscular rheumatism, malformations etc. For some diseases there were somewhat higher morbidity ratios in the control material than in the general population. This applied to diabetes in men and the prevalence of neuralgia, neuritis and diseases of the eye. The increases were, however, not significant, and might thus have been fortuitous. In comparisons with the Health Survey in Stockholm it was found that diseases of the heart were more widespread in the

control material, particularly among women. The reason for this is not clear. Certain selective factors may have played a part; possibly the boundary between health and sickness was drawn differently in the two surveys.

For many diseases no comparable morbidity data for the general population could be found (e.g. for cerebral hemorrhage, cerebral thrombosis and defects arising from such diseases). For other diseases the figures obtained were so uncertain that no reliable comparisons could be made (this applied for instance, to migraine, impaired hearing, hypertension, chronic diseases of the respiratory system, diseases of the gallbladder and biliary ducts, arthrosis deformans etc.). Some diseases were only represented by isolated cases and no real comparisons could therefore be made (e.g. pernicious anemia, cirrhosis of the liver etc.).

In so far as comparisons could be made, the morbidity ratios obtained for the control cases generally agreed rather well with the prevalence of various diseases in the general population; the increased extent of heart diseases was the only notable exception.

20. Among paupers there were a few common diseases whose frequency was considerably increased. Thus at the medical examination 15.1 per cent of the men and 5.4 per cent of the women suffered from a still unhealed tuberculosis. Heart disease occurred in 31.9 per cent of men and 23.2 per cent of women which was considerably higher than the ratios for the control cases, themselves high. The number of cases of hypertension could admittedly be defined differently according to where the boundary for high blood pressure was drawn; but in all events there was a considerable excess of such cases, particularly among women. Invalidity was present in 27.1 per cent of male and 14.8 per cent of female paupers; here were included invalidity following accidents and illness and also congenital malformations. The obesity ratio in women was also very high. Diabetes occurred in nearly 6.6 per cent of the male paupers, while for the general population the prevalence is usually considered to be less than 1 per cent, in some surveys up to 2 per cent.

21. A more moderate excess morbidity appeared for both sexes for disabling diseases of the central nervous system (as e.g. multiple sclerosis) and for the whole group of diseases of the central nervous system, probably also chronic diseases of the respiratory system (chronic bronchitis, emphysema, bronchiectasis etc.), and for kidney diseases. In addition the number of women who had had syphilis was in all probability somewhat increased (there were more women who

had been prostitutes among the paupers than in the controls). The women also showed increased frequencies of asthma, thyroid disturbances and chronic polyarthritis.

22. For some further diseases increased frequencies were obtained for the paupers, but definite conclusions could not be drawn, since the increases were not significant, or corresponding data for the general population was considered rather unreliable or difficult to compare. This applied to both sexes for cerebral hemorrhage, diseases of the eye and ear and also severe impairment of sight and hearing, diseases of the gallbladder and biliary ducts, and for men also chronic polyarthritis, muscular rheumatism and asthma, for women migraine.

23. In a large number of diseases no excess morbidity was apparent for paupers. This was the case with certain acute and usually transient conditions as epidemic diseases and appendicitis, rapidly advancing diseases as malignant neoplasms, diseases which generally result in little or no disability, as simple goitre, skin diseases and hernia. It was also true of some long-term diseases with some degree of disability, as varicose veins, varicose ulcers and ulcer of the stomach and duodenum.

24. For many diseases, finally, no comparisons were made between the paupers and the controls or general population. This was the case with, firstly, uncommon diseases which were only represented by isolated cases (e.g. arthritis urica, cirrhosis of the liver, nephrolithiasis etc.); secondly diagnoses which lacked precision (e.g. arthrosis deformans, sciatica); and finally diseases which were disregarded at the medical examination and in the interviews (e.g. gonorrhea, avitaminosis, diseases of the blood, acute infections of the respiratory and digestive systems, cystitis, diseases of the genital organs and complications of pregnancy, benign neoplasms, kyphoscoliosis, flat foot etc.).

25. In summing up, therefore, it may be said that the paupers showed increased morbidity for several prolonged, disabling diseases. For some other diseases of this type there was also some excess, but no definite statement could be made. For many diseases, above all very transient or rapidly advancing diseases, and diseases which generally cause only slight disability, no increase in morbidity was apparent. For a few diseases, finally, no statement could be made, since the results were difficult to assess or the diseases lay outside the scope of the survey.

26. A sign of the greater severity of illness in paupers was that more paupers than controls had been admitted to hospital during the ten year period preceding selection. During the seven years after selection

also, more paupers than controls died. Moreover in comparison with the general population there was a great excess mortality, especially among the male paupers.

27. Many of the paupers suffered from several diseases at the same time. In such cases a main disease could generally be distinguished. In the control material the most common main diseases in men were heart diseases, and after that, in order of frequency, diseases of the organs of movement, diseases of the digestive system and hypertension. Each of these diseases occurred in 10–20 per cent of the sick. In paupers heart diseases, tuberculosis and diseases of the organs of movement dominated with 15–20 per cent each. In women hypertension, heart diseases and diseases of the organs of movement dominated among the main diseases in both samples. Thus a rather limited number of diseases were completely dominant from the sociomedical point of view.

28. About 90 per cent of the paupers and 70 per cent of the controls were found to suffer from some physical illness at the medical examination. In other sickness surveys both higher and lower frequencies have been found than those obtained for the controls in this survey. The decisive factor here is how the illnesses are defined and the selection of the material. Comparison with other surveys had, therefore, only a limited value in this respect.

Disability (Chapter 8)

29. In this project the severity of illness was gauged by its effect on capacity for work. This was graded by a summary estimation, in which the effects of the mental and physical factors were evaluated separately.

30. Disability was far greater for the paupers than for the controls. Among the paupers only 4 per cent of the men and 12 per cent of the women had no disability, but, on the other hand, about half of the control cases. No less than 36 per cent of the male paupers and 10 per cent of the female paupers were completely disabled, but only 5 per cent of the male and 3 per cent of the female control cases. Thus illness was not only more frequent among the paupers, the illnesses which were present were also, on the average, more severe than in the control cases.

31. Physical illness caused more disability, on an average, than mental illness.

32. The male paupers were far more ill, both in regard to physical and mental disease, than the female paupers.

RÉSUMÉ ET CONCLUSIONS

Dans ce rapport sont exposés les résultats d'une enquête concernant la morbidité psychique et somatique des personnes assistées de façon permanente par les services sociaux de Stockholm.

Exposé du problème (chapitre 1)

1. On sait qu'il y a une relation entre la maladie et la situation sociale du sujet. La mortalité totale et la morbidité ont toujours été les plus élevées dans les classes sociales inférieures. Il y a cependant relation d'interdépendance: les personnes malades qui ne sont plus aptes au travail sont vite réduites à l'indigence; la pauvreté, d'autre part, entraîne souvent des difficultés sociales qui peuvent augmenter les risques de maladie et retarder la guérison.

2. La relation avec les différentes conditions sociales est cependant très variable pour différentes maladies. Pour quelques unes, il n'y a pas de relation certaine. D'après diverses enquêtes, un certain nombre de maladies sont plus habituelles dans les classes sociales inférieures (tuberculose, bronchite, pneumonie, ulcère ventriculaire, certaines formes de cancer, troubles cardiaques valvulaires, myocardite, hernie, rhumatisme, etc...); d'autres maladies sont par contre plus fréquentes dans les classes supérieures (diabète, leucémie, sclérose des artères coronaires, cirrhose du foie, calculs biliaires, appendicite, etc...). Certaines maladies psychiques semblent même plus fréquentes dans les classes inférieures que dans les classes aisées. C'est surtout le cas pour l'alcoolisme chronique, peut-être aussi pour certaines psychoses. La plupart des enquêteurs ont constaté un plus grand nombre de cas de schizophrénie dans les classes sociales inférieures. La psychose maniaque-dépressive semble par contre ne pas varier sensiblement de fréquence selon l'appartenance sociale. Les documents sont contradictoires en ce qui concerne les états névrotiques. Les états d'arriération semblent également être plus fréquents dans les classes inférieures, bien que ce point ait été discuté de divers côtés en raison des nombreuses sources d'erreurs inhérentes à des enquêtes de ce genre.

3. Ces enquêtes ne permettent pas de tirer des conclusions certaines

en ce qui concerne les conditions qui règnent parmi les personnes assistées. Les enquêtes directes près des assistés ont cependant montré que les maladies de longue durée semblent dominer chez les assistés. C'est surtout le cas de ce que l'on nomme maladies de la vieillesse, des maladies des organes de la circulation, de la locomotion, et également de la tuberculose, selon certaines enquêtes. Les maladies psychiques sont également habituelles. Il est cependant difficile de dire quelles maladies psychiques apparaissent de préférence chez les assistés. Nous sommes mal informés sur ce point.

Méthodes et matériel
(chapitres 2-5)

4. Les enquêtes sur la morbidité peuvent étudier différents points : on distingue en général l'apparition de la maladie à une certaine époque (the prevalence), le nombre des cas nouveaux constatés pendant une certaine période de temps (the incidence) et le risque pour le sujet d'être atteint par différentes maladies pendant sa vie (the expectance). Ces trois aspects donnent différentes images de la morbidité d'une population.

5. Etant donné que les maladies de longue durée jouent le plus grand rôle parmi les assistés, c'est surtout la prédominance de la maladie (the prevalence of illness) qui présente de l'intérêt. L'incidence (the incidence of illness) qui est dominée d'une toute autre façon par l'apparition de maladies passagères sans grande influence sur la paupérisation présente moins d'intérêt pour notre étude. Comme les maladies dont le sujet a été précédemment atteint peuvent avoir eu leur importance dans le développement, il est intéressant de retenir aussi les risques qu'encourt le sujet d'être atteint par certaines maladies. Dans l'enquête de morbidité qui est présentée ici, on a en conséquence étudié à la fois la prédominance de la maladie et les risques de morbidité. Le calcul des risques n'a cependant été entrepris que dans la mesure où il était possible d'établir des comparaisons avec les conditions qui règnent dans la population normale ou dans d'autres cas retenus pour contrôle.

6. Le matériel comprend 500 assistés de Stockholm, âgés de 16 à 67 ans, qui ont reçu une assistance à domicile par l'intermédiaire des services sociaux, pendant au moins six mois en 1943. Les cas ont été choisis au hasard de la cartothèque. Le nombre des femmes était environ le double de celui des hommes. L'âge moyen était de 50 ans environ pour les deux sexes.

7. Pour chaque cas retenu, on a choisi dans les registres du recensement un cas socialement correspondant, désigné ici par l'expression « cas de contrôle », cette personne n'ayant pas été assistée en 1943. Les deux séries présentaient une bonne concordance en ce qui concerne le sexe et l'âge, et une assez bonne concordance en ce qui concerne le type de famille, l'état civil et la zone d'habitation. La concordance n'a pas été entièrement satisfaisante pour les métiers; les cas de contrôle étaient plus proches de la population moyenne, surtout pour les femmes, que ce n'était le cas pour les assistés.

8. L'enquête personnelle comprenait anamnèse somatique complète et aussi souvent que possible, également examen somatique, anamnèse psychique, observations de comportement, tests Point scale et Rorschach, interview sociale, visite à domicile, examen de différents points, renseignements provenant des hôpitaux et de diverses institutions, médecins, écoles, employeurs, etc... et dans certains cas, interviews avec le personnel des services sociaux, les parents et les connaissances.

9. La sélection du matériel et les différentes sources d'erreurs dans l'obtention des renseignements ont été discutées de façon approfondie. Etant donné que l'enquête n'a porté que sur une partie de la clientèle assistée, il est impossible d'en tirer des conclusions générales touchant l'ensemble des personnes assistées. Certaines insuffisances du matériel invitent également à la prudence dans les conclusions, surtout dans les comparaisons avec le résultat d'autres enquêtes.

Morbidité psychique (chapitre 6)

10. Dans un certain nombre de cas le matériel réuni n'était pas suffisant pour permettre une appréciation de l'état psychique. Cela vaut pour 8% des hommes et 3% des femmes assistés, et pour 13% des hommes et 9% des femmes des cas de contrôle.

11. Une comparaison entre l'extension des maladies psychiques dans le matériel de contrôle et dans la population normale pourrait indiquer dans une certaine mesure quelle a été l'importance du facteur de sélection des cas de contrôle en ce qui concerne la fréquence des maladies qui a été obtenue. Une telle comparaison n'est cependant possible que pour certaines maladies. Pour un certain nombre de maladies, on manque de renseignements correspondants concernant la population normale. Pour quelques maladies les définitions sont en outre si incertaines et les méthodes diagnostiques des différents enquêteurs sont pratiquement incommensurables.

L'extension de certaines psychoses dans une population normale est connue, mais non pour Stockholm. La fréquence des psychoses relevées était un peu plus grande parmi les hommes dans les cas de contrôle. Le nombre des cas d'alcoolisme chronique au sens médical du terme et le nombre des personnes s'adonnant à la boisson était nettement plus élevé parmi les hommes. Les divergences pourraient tenir au fait que, surtout pour les hommes, les cas de contrôle sélectionnés appartenaient aux classes sociales inférieures. Aucun cas d'arriération mentale grave n'a été relevé dans les cas de contrôle, ce qui pourrait tenir au fait que dans cette situation le sujet ne peut en général subsister sans l'assistance sociale.

12. La fréquence de la schizophrénie dans la clientèle assistée était très élevée parmi les hommes. Elle était de 5,9% (7,8% en comptant les cas incertains), chiffres qui dépassent ceux qui sont donnés dans d'autres enquêtes de population. On comptait 1,5% de schizophrénie chez les femmes (2,2% en comptant les cas incertains). La proportion n'était donc pas aussi forte et pourrait être due au hasard.

D'autres psychoses étaient représentées, mais en si petit nombre qu'il n'a pas été possible de se prononcer nettement. La plupart des psychoses étaient cependant un peu plus fréquentes chez les assistés que chez les cas de contrôle. Au total, on a relevé les chiffres suivants: 13,1% des hommes et 7,1% des femmes souffrant de psychose, et en comptant les cas anciens 16,3% des hommes et 11,8% des femmes. Ces proportions dépassent largement ce qui a été constaté dans le matériel de contrôle et dans les enquêtes de morbidité concernant la population normale. Les relevés de risques de psychose montrent une plus forte proportion que dans la population normale, au moins pour les hommes.

13. On a relevé un petit nombre de cas d'oligophrénie profonde. La plupart de ces cas sont pris en charge par les services compétents et par conséquent absents de la clientèle ouverte à notre enquête. Tous les cas relevés étaient extrêmement pénibles.

14. Pour les autres maladies psychiques, les comparaisons avec la population normale n'ont été possibles qu'à titre exceptionnel pour les raisons indiquées au paragraphe 11.

Les « maladies cérébrales » (désignent ici certaines maladies cérébrales organiques comportant des modifications psychiques, comme tumeur du cerveau, encéphalopathie traumatique, hémorragie cérébrale, etc...) ont été relevées chez 6,5% des hommes et 1,5% des femmes assistés. Ces proportions dépassent celles des cas de contrôle, mais non de façon significative.

L'alcoolisme chronique apparaît chez 17,6 % des hommes et 2,5 % des femmes, ce qui est plus habituel que dans le matériel de contrôle et dépasse même de façon importante les conditions de la population normale, d'après les sources dont nous disposons.

Certains états, qui sont ici indiqués comme lésions incertaines (schizoïdie, ixophrénie, états éventuels de postencéphalie et posttraumatisme) étaient aussi plus fréquents parmi les assistés, mais de façon significative seulement pour les femmes.

Les états d'insuffisance et le vieillissement étaient aussi nettement plus fréquents parmi les assistés que parmi les non-assistés.

15. Une appréciation de la morbidité psychique totale présente certaines difficultés. Pour certaines maladies, on peut obtenir des données de fréquence assez sûres. Pour d'autres, par contre, on peut seulement faire état d'appréciations plus ou moins discutables.

En conséquence on donne dans l'enquête une série correspondant à des états psychopathologiques caractérisés et bien définis. On ajoute ensuite à ces chiffres ceux qui correspondent à des maladies de caractère moins net et plus discutable. Les états bien définis et graves comprennent en premier lieu les psychoses, oligophrénies et maladies cérébrales du type indiqué plus haut. Ces états ont été notés chez 20 % des hommes et 10 % des femmes assistés, ce qui dépasse largement la fréquence relevée dans le matériel de contrôle (6 % et 3 %) et dans la population normale. En comptant un certain nombre d'intoxications chroniques, c'est-à-dire surtout l'alcoolisme chronique, la fréquence passe à 35 % des hommes et 12 % des femmes. Si l'on ajoute des maladies dont le caractère lésionnel peut être discuté (schizoïdie, ixophrénie, états suspects de postencéphalite etc...) la proportion passe à 47 % pour les hommes et 20 % pour les femmes. En comptant les nombreux cas ne présentant, pour autant que l'on puisse juger, que des symptômes de réaction, on arrive à 71 % des hommes et 54 % des femmes. Certains sujets présentaient également des signes certains d'abaissement du niveau psychique en relation avec le vieillissement. En comptant ces cas, on arrive à la proportion de 82 % des hommes et de 64 % des femmes en état de maladie mentale au moment de l'examen médical. Notons enfin qu'un certain nombre d'autres sujets avaient précédemment souffert de maladies mentales, mais étaient guéris lors de l'examen.

Parmi les cas de contrôle, les proportions étaient nettement plus faibles. Les maladies graves, comme les psychoses, l'oligophrénie, les maladies cérébrales, n'apparaissent que chez 6 % des hommes et 3 % des femmes. En comptant les cas présentant des symptômes d'alcoolisme

chronique, de schizoïdie, ixophrénie, états suspects de postencéphalite et autres, insuffisances diverses, on arrivait à 31 % des hommes et 18 % des femmes. En comptant finalement les cas de modifications psychiques dues au vieillissement, la morbidité totale était de 41 % pour les hommes et 27 % pour les femmes dans le matériel de contrôle. Parmi les assistés, le nombre des sujets qui avaient été en traitement dans un hôpital était plus élevé.

16. On obtient ainsi, même pour les cas de contrôle, des fréquences élevées de morbidité. Etant donné que les chiffres obtenus sont établis en partie sur des appréciations, il est difficile de comparer les résultats avec ceux des autres enquêtes de morbidité, ce qui a été exposé en détail.

Dans certaines enquêtes, on a obtenu des fréquences semblables ou même plus élevées pour l'extension des divers symptômes psychiques. Les importantes différences obtenues dans les enquêtes sur la morbidité psychique sont sans doute dues à des divergences dans l'appréciation des symptômes considérés comme psychopathologiques. En outre, dans la présente enquête, le matériel de contrôle est nettement sélectif. (Les personnes âgées sont représentées dans une proportion majoritaire, surtout dans les classes sociales inférieures.) Même si une correction des composantes d'âge pouvait être entreprise, il serait donc erroné d'appliquer à la population normale les conclusions tirées des résultats exposés ici.

17. Chez les assistés, la morbidité psychique était plus élevée pour les hommes que pour les femmes, en raison uniquement du nombre élevé de psychoses, maladies cérébrales organiques graves et de l'alcoolisme chronique chez les hommes. Dans les cas de contrôle, la morbidité élevée chez les hommes était également due à l'alcoolisme, mais aussi à des cas de modifications lésionnelles incertaines. Les facteurs de sélection peuvent cependant avoir joué un certain rôle. Il n'est pas non plus possible d'éliminer entièrement l'incidence de certaines différences dans l'appréciation de l'état des hommes et des femmes.

Morbidité somatique (chapitre 7)

18. Pour les cas de contrôle, le nombre des personnes interviewées en ce qui concerne l'état somatique était seulement un peu plus faible que pour les assistés, mais par contre un nombre beaucoup moindre de cas de contrôle a été soumis à l'examen corporel (environ 30 % contre

85% des assistés). Les renseignements obtenus dans les interviews, et ceux qui provenaient des hôpitaux, polycliniques et médecins traitants donnaient cependant des bases suffisantes pour une appréciation médicale dans tous les cas en ce qui concerne les hommes, et dans tous les cas sauf deux en ce qui concerne les femmes (soit 0,6%), cela pour les assistés. Pour les cas de contrôle, les renseignements étaient insuffisants pour 8% des hommes et 6% des femmes.

19. L'extension des maladies somatiques dans le matériel de contrôle pourrait également nous éclairer sur l'importance que l'on peut attribuer au facteur de sélection. Pour beaucoup de maladies des comparaisons ont pu être faites avec les résultats d'autres enquêtes de morbidité. Pour la plupart des maladies il y avait une bonne concordance entre la morbidité dans le matériel de contrôle et celle de la population normale. Cela valait pour la tuberculose, l'asthme, les troubles thyroïdiens, le diabète chez les femmes, l'adiposité (en tout cas il n'y avait pas de discordance notable), les maladies cérébrales organiques, l'ischias, les varices, l'ulcère ventriculaire, l'ulcère duodénal, les hernies, les maladies des reins, les maladies de la peau, la polyarthrite chronique (au moins dans certaines comparaisons), le rhumatisme musculaire, les malformations, etc... Pour certaines maladies il y avait une morbidité un peu plus élevée que dans la population normale. C'était le cas pour le diabète chez les hommes et pour les névralgies, névrites et maladies oculaires. Cette plus forte morbidité n'était cependant pas significative et pouvait par conséquent être occasionnelle. Les comparaisons avec les enquêtes de santé à Stockholm montrent que le nombre des maladies de cœur est plus élevé dans le matériel de contrôle, surtout chez les femmes. La raison est incertaine. Certains facteurs de sélection peuvent avoir joué leur rôle, peut-être aussi la limite entre l'état de santé et la maladie a-t-elle été différente dans les deux enquêtes.

Pour quelques maladies on ne pouvait trouver de morbidité correspondante dans la population normale (par exemple hémorragie cérébrale, thrombose cérébrale et états de déficience consécutifs à ces maladies). Pour d'autres maladies, les chiffres obtenus étaient si incertains que des comparaisons sûres ne pouvaient être faites (par exemple migraine, abaissement de l'ouïe, hypertension, maladies chroniques des organes de la respiration, maladies de la vésicule, arthrite déformante, etc...). Un certain nombre de maladies étaient seulement représentées par des cas isolés et ne pouvaient permettre de comparaisons (anémie pernicieuse, cirrhose du foie, etc...).

Dans la mesure où des comparaisons pouvaient être faites, la fréquence de la morbidité dans les cas de contrôle, concordait assez bien en général avec les conditions de la population normale, la plus forte proportion de maladies cardiaques étant la seule différence marquée.

20. Chez les assistés quelques maladies communes étaient nettement plus fréquentes. Lors de l'examen médical, 15,1% des hommes et 5,4% des femmes étaient atteints de tuberculose non guérie, 31,9% des hommes et 23,2% des femmes souffraient de maladies cardiaques, chiffres plus élevés que ceux déjà fort élevés en eux-mêmes que l'on avait enregistrés dans les cas de contrôle. Le nombre des cas d'hypertension pouvait évidemment être différent selon la limite prise pour l'hypertension sanguine, mais en tout cas il y avait une forte proportion de cas, surtout chez les femmes. L'invalidité existait chez 27,1% des hommes et 14,8% des femmes (invalidité consécutive à un accident ou à une maladie et invalidité provenant de malformations de naissance). Parmi les femmes la fréquence de l'adiposité était très grande. 6,6% des hommes examinés étaient atteints de diabète alors que dans la population normale la proportion généralement donnée est inférieure à 1% (jusqu'à 2% selon certaines études).

21. Une plus forte morbidité apparaît encore pour les deux sexes en ce qui concerne les maladies nerveuses entraînant l'invalidité (par exemple sclerose disséminée, etc...) tout le groupe des maladies nerveuses, probablement aussi les maladies chroniques des organes respiratoires (bronchite chronique, emphysème, bronchiectasie, etc...) et les maladies des reins. Le nombre des femmes qui avaient eu la syphilis était selon toute vraisemblance assez élevé (il y avait parmi les assistées davantage d'anciennes prostituées que dans les cas de contrôle). Les femmes étaient plus fréquemment atteintes d'asthme, de troubles thyroïdiens et de polyarthrite chronique.

22. On a, de plus, relevé une plus grande fréquence de quelques autres maladies chez les assistés, sans pouvoir en tirer de conclusions sûres, l'augmentation de la fréquence n'étant pas significative, ou les chiffres correspondants pour la population normale étant considérés comme peu sûrs ou difficiles à comparer. C'était le cas pour les deux sexes des maladies suivantes : hémorragie cérébrale, maladies des yeux et des oreilles, graves diminutions de la vue et de l'ouïe, maladies des voies biliaires, pour les hommes également la polyarthrite chronique, le rhumatisme musculaire et l'asthme, pour les femmes, la migraine.

23. Pour un grand nombre de maladies, il n'y avait pas de morbidité

plus élevée parmi les assistés. C'était le cas pour certains états aigus et passagers, comme les maladies épidémiques et l'appendicite, les maladies à évolution rapide comme les tumeurs malignes, les maladies n'ayant que peu ou pas d'influence sur la capacité de travail comme le goitre atoxique, les maladies de la peau, les hernies, mais aussi pour un certain nombre de maladies de longue durée entraînant une certaine diminution de la capacité de travail comme les varices, les ulcères variqueux, ventriculaires et duodénaux.

24. Pour un bon nombre de maladies enfin, il n'a pas été possible d'établir de comparaison entre la clientèle assistée, le matériel de contrôle, et la population normale. C'était le cas, — d'une part pour certaines maladies moins communes qui n'étaient représentées que par des cas isolés (par exemple arthritisme urica, cirrhose du foie, calculs rénaux, etc...) — d'autre part pour les diagnostics mal précisés (par exemple arthrose déformante, ischias) — enfin pour des maladies qui avaient échappé à l'examen corporel et à l'interview (par exemple gonorrhée, avitaminose, maladies du sang, infections aiguës des voies respiratoires et des organes digestifs, cystite, maladies des organes génitaux et maladies de la grossesse, tumeurs bénignes, déformations de la colonne vertébrale, pieds plats, etc...).

25. On pouvait donc dire en résumé que la clientèle assistée présentait une plus forte morbidité dans une majorité de maladies de longue durée entraînant l'invalidité. Pour certaines autres maladies de ce genre, il y avait une certaine augmentation de la fréquence sans que l'on puisse cependant se prononcer avec netteté. Pour un grand nombre de maladies, surtout pour les maladies à évolution ou à guérison rapide, et pour les maladies n'entraînant en général qu'une assez faible diminution de la capacité de travail, il n'y avait pas d'augmentation de la morbidité. Pour un certain nombre de maladies, enfin, il n'était pas possible de se prononcer, les résultats étant d'interprétation difficile, ou les maladies tombant en dehors du cadre de l'enquête.

26. Un signe de plus grande morbidité parmi les assistés, par rapport aux cas de contrôle, était que l'on trouvait dans cette catégorie un plus grand nombre de sujets ayant été soignés en hôpital pendant les dix années précédant la sélection. Pendant une période de 7 ans après la sélection, il y a eu également plus de décès parmi les assistés que parmi les cas de contrôle. Dans la comparaison avec la population normale, la mortalité était aussi nettement plus forte, surtout chez les hommes.

27. Il était habituel de trouver simultanément plusieurs maladies chez les assistés. En règle générale on pouvait distinguer une maladie

principale. Dans le matériel de contrôle, la plus commune des maladies principales chez les hommes était la maladie de cœur, ensuite, dans l'ordre, les maladies des organes de la locomotion, les maladies des organes de la digestion et l'hypertension. Ces maladies ont été notées chez 10 à 20 % des malades. Parmi le matériel de contrôle dominaient les maladies de cœur, la tuberculose et les maladies des organes de la locomotion dans une proportion de 15 à 20 % chacune. Parmi les femmes dominaient dans les deux groupes de cas, l'hypertension, les maladies cardiaques, les maladies des organes de la locomotion, comme maladies principales. On pouvait donc relever un nombre relativement restreint de maladies dominantes, au point de vue médico-social.

28. Au total, 90 % des assistés et 70 % des cas de contrôle se trouvaient porteurs de maladies somatiques lors de l'examen médical. Dans d'autres enquêtes on a noté des chiffres parfois plus élevés, parfois moins élevés que ceux que nous avons notés pour les cas de contrôle. Les points décisifs sont la définition de la notion de maladie et la sélection du matériel. Les comparaisons avec d'autres enquêtes ont, par conséquent, une valeur limitée à ce point de vue.

Capacité de travail (chapitre 8)

29. Dans cette enquête, pour mesurer le degré de gravité des maladies, on a tenu compte de leur effet sur la capacité de travail. La gravité est graduée d'après une évaluation sommaire, les effets des facteurs psychiques et somatiques ont été appréciés séparément.

30. La capacité de travail était plus fortement réduite pour les assistés que pour les cas de contrôle. Parmi les assistés, seulement 4 % des hommes et 12 % des femmes étaient entièrement aptes au travail, contre 50 % environ dans les cas de contrôle. Chez les assistés, 36 % des hommes et 10 % des femmes étaient entièrement inaptes au travail, contre 5 % des hommes et 3 % des femmes dans les cas de contrôle.

Les maladies n'étaient donc pas seulement plus fréquentes chez les assistés que dans les cas de contrôle, leur gravité était aussi en général plus grande.

31. Les maladies somatiques entraînaient en moyenne plus d'incapacité de travail que les maladies psychiques.

32. Parmi les assistés, les hommes étaient nettement plus atteints moralement et physiquement que les femmes.

КРАТКОЕ СОДЕРЖАНИЕ И ВЫВОДЫ

В настоящем докладе приводятся результаты исследования психической и соматической заболеваемости среди длительно социально опекаемых в Стокгольме.

ПОСТАНОВКА ПРОБЛЕМЫ

(Гл. 1)

1. Хорошо известно, что существует связь между болезнью и различными социальными условиями. Общая смертность и заболеваемость были всегда наибольшими в низших социальных классах. Существует, однако, взаимная зависимость. Больные, которые не могут более работать, легко впадают в материальную нужду. Бедность, с другой стороны, часто влечет за собой социальные затруднения, которые могут повысить риск заболеваемости и замедлить выздоровление.

2. Связь с различными социальными условиями сильно варьирует у разного рода болезней. Некоторые болезни не имеют никакой очевидной связи. Часть болезней, согласно различным сопоставлениям, обычнее в низшем социальном слое (напр. туберкулез, бронхит, воспаление легких, язва желудка, некоторые формы рака, органический порок сердца, миокардит, грыжа, ревматизм и т. д.), другие, наоборот, в высшем социальном слое (напр. диабет, лейкемия, склероз сердечных сосудов, цирроз печени, желчные камни, аппендицит и т. д.). Также некоторые психические болезни, повидимому, обычнее среди хуже нежели лучше обеспеченных. Это касается в особенности хронического алкоголизма, возможно также известных психозов. Многочисленные исследователи нашли повышенную частоту шизофрении в низшем социальном слое. Маниакально-депрессивный психоз, кажется, напротив, не варьирует существенно по отношению к социальным группам. Касательно невротических состояний данные противоречивы. Отсталость, повидимому, также обычнее в низшем социальном слое; это однако было взято под сомнение различными сторонами вследствие многочисленных источников ошибок при подобных исследованиях.

3. Из таких исследований нельзя вывести верных заключений об отношениях среди социально опекаемых. Прямые исследования социально опекаемых показали, однако, что преобладают, повидимому, длительные болезни. В особенности обычны т. наз. старческие болезни, болезни органов кровообращения и органов движения, согласно некоторым исследованиям — туберкулез. Также обычны психические болезни; однако какого рода психические болезни преимущественно встречаются у социально опекаемых не полностью выяснено.

МЕТОДИКА И МАТЕРИАЛЫ

(ГЛ. 2-5)

4. Исследования заболеваемости могут касаться разнообразных соотношений. Обыкновенно, как правило, различаются наличие болезней в известный момент времени (the prevalence), число новых случаев болезни в течение известного отрезка времени (the incidence) и риск подвергнуться различным заболеваниям в течение жизни (the expectance). Эти три аспекта дают различные картины заболеваемости населения.

5. Ввиду того, что длительные болезни играют наибольшую роль у социально опекаемых, особый интерес приобретает „the prevalence of illness“. „The incidence of illness“, в которой совершенно особым образом преобладают кратковременные болезни, не имеющие заслуживающего внимания значения для пауперизации, менее интересна в этой связи. Так как также ранее перенесенные болезни могли иметь значение для развития, интересен однако также риск заболевания различными болезнями. В настоящем исследовании заболеваемости исследованы поэтому как „the prevalence of illness“ так и риск заболеваемости. Расчеты риска, однако, проделаны в той степени, в какой сравнения с соотношениями у нормального населения или в других пробах на выбор были возможны.

6. Материал охватывает 500 социально опекаемых в Стокгольме в возрасте 16-67 лет, которые получали от социального бюро помощь на дому в течение не менее 6 месяцев в 1943 г. Случаи были взяты наугад из социального регистра. Женщин было примерно вдвое больше чем мужчин. Средний возраст для обоих полов был около 50 лет.

7. Для каждого исследуемого случая был взят наугад из подушной переписи „социальный двойник“, который не получал помощи по бедности в 1943 г. Обе серии показали хорошее соответствие относительно подразделения по возрасту и довольно хорошее соответствие относительно подразделения по типу семьи, гражданскому состоянию и местожительству. Для профессии соответствие не было полностью удовлетворительным: контрольные случаи, особенно женщины, были несколько ближе к среднему населению нежели социально опекаемые.

8. Исследование лиц заключалось в соматическом анализе и, в возможно большом числе случаев, также в физическом обследовании, психическом анамнезе, наблюдениях за поведением, испытаниях согласно Point scale и Rorschach, социальном опросе, посещениях на дому, просмотре различных документов, сведений от больниц и различного рода учреждений, от врачей, школ, работодателей и т. д., в некоторых случаях также в интервью со служащими социальных учреждений, родственниками и знакомыми.

9. Отбор материала, а также различные источники ошибок, подробно обсуждены. Так как исследование имело в виду лишь часть социально опекаемых, сделать общие выводы касательно соотношений среди всего числа подобных лиц не представляется возможным. Известные недостатки в материале должны служить поводом к осторожности в выводах, в особенности при сравнениях с результатами других исследований.

ПСИХИЧЕСКАЯ ЗАБОЛЕВАЕМОСТЬ

(ГЛ. 6)

10. В части случаев собранный материал не был достаточным, чтобы позволить судить о психическом состоянии. Это касалось 8 % мужчин и 3 % женщин из социально опекаемых и 13 % мужчин и 9 % женщин из контрольных случаев.

11. Сравнение между распространенностью психических болезней в контрольном материале и у нормального населения осветило бы в некоторой степени значение отбора пробы на выбор для полученных частот болезней. Такое сравнение возможно, однако, лишь относительно некоторых болезней. Для части болезней отсутствуют соответствующие данные касательно нормального населения. Определения некоторых болезней, кроме того, настолько расплывчаты, а диагностическая практика различных исследователей настолько разнообразна, что результаты различных исследований в общем несоизмеримы.

Распространенность некоторых психозов у нормального населения известна, однако не для Стокгольма. Общая частота психозов была, возможно, несколько повышена у мужских контрольных случаев. Число хронических алкоголиков в медицинском смысле, а также злоупотребляющих алкоголем, было явно повышено среди мужчин. Отклонения могли быть обусловлены тем, что мужчины были селективно набраны из низшего социального слоя. Среди контрольных случаев не встретилось ни разу сильно выраженной отсталости, что могло зависеть от того, что подобные лица, как правило, не могут справляться самостоятельно без помощи со стороны общества.

12. Частота шизофрении у социально опекаемых была сильно повышена среди мужчин. Она доходила до 5,9 %, даже до 7,8 %, если прибавлялись сомнительные случаи, что далеко превосходит данные, выявленные в других исследованиях населения. Имелось 1,5 % шизофреников среди женщин, даже 2,2 %, если прибавлялись сомнительные случаи. Это повышение было, таким образом, не столь велико и могло зависеть от случайностей.

Прочие психозы были представлены таким незначительным числом случаев, что высказаться определенно не представлялось возможным. Большинство психозов было, однако, несколько обычнее среди социально опекаемых чем среди контрольных случаев. В общем психозы встретились у 13,1 % мужчин и 7,1 % женщин; если присчитывались также прежние случаи, то 16,3 % мужчин и 11,8 % женщин страдали психозом. Эти данные частоты существенно превышали данные, выявленные как в контрольном материале, так и при исследованиях заболеваемости у нормального населения. Также расчет общего риска психоза указывал на значительное повышение по сравнению с соотношениями среди нормального населения, по крайней мере для мужчин.

13. Встретилось небольшое число случаев сильно выраженной олигофрении. Большинство таких случаев находилось в стационарных учреждениях и поэтому выпало из поликлинически опекаемой клиентуры.

Все имевшиеся здесь случаи находились в бедственном положении.

14. Относительно остальных психических болезней (см. п. 11), лишь в виде исключения по выше приведенным причинам, могли быть сделаны сравнения с соотношениями у нормального населения.

„Болезни головного мозга“ (под которыми имелись здесь в виду некоторые

органические болезни головного мозга с психическими изменениями, как напр. опухоли мозга, *encephalopathia traumatica*, мозговое кровоизлияние и т. п.) встретились у 6,5 % мужчин и 1,5 % женщин среди социально опекаемых. Это превышало соотношения среди контрольного материала, но незначительно.

Хронический алкоголизм встретился у 17,6 % мужчин и 2,5 % женщин, был более обычным чем в контрольном материале, а также существенно превысил данные касательно нормального населения.

Некоторые состояния, которые здесь идут под рубрикой недостовверных повреждений (шизоиды, иксифрении, постэнцефалитические и посттравматические состояния), были также обычные среди социально опекаемых чем среди контрольных случаев, значительными только лишь для женщин.

Состояния недостаточности и, наконец, возрастные изменения были также значительно обычные среди социально опекаемых чем среди контрольного материала.

15. Оценка общей психической заболеваемости встречает известные затруднения. Относительно некоторых болезней могут быть получены надежные данные частоты, касательно других, напротив, только более или менее спорные оценки.

В настоящем исследовании приведена, поэтому, серия данных частоты, причем к достоверным и ясно очерченным психопатологическим состояниям прибавлялись постепенно все более неясные и спорные картины болезни. За ясно очерченные и тяжелые состояния считались в первую голову психозы, олигофрения и „болезни головного мозга“ выше описанного рода. Такие состояния встретились у 20 % мужчин и 10 % женщин среди социально опекаемых, что далеко превосходило частоту заболеваемости как в контрольном материале (соответственно 6 % и 3 %), так и среди нормального населения. Если к этому прибавлялись данные интоксикаций, т. е. прежде всего *alkoholismus chronicus*, то частота повышалась до 35 % у мужчин и 12 % у женщин. Если к этому прибавлялось также число случаев болезней, о характере которых как повреждений могли быть различные мнения (шизоиды, иксифрении, подозреваемые постэнцефалитические состояния и т. п.), частота возрастала до 47 % у мужчин и 20 % у женщин. Если к этому прибавлялось значительное число случаев с исключительно — поскольку можно было судить — только реактивными симптомами, частота доходила до 71 % у мужчин и 54 % у женщин. Некоторые обнаруживали, кроме того, ясные признаки понижения психического уровня в связи с постарением; если бы включались также такие случаи, то не менее чем 82 % мужчин и 64 % женщин были бы психически больными при обследовании. Кроме того часть обследуемых были психически больными ранее и выздоровели до обследования.

Среди контрольного материала оказалась значительно меньшая частота. Тяжелые болезни как психозы, олигофрения и „болезни головного мозга“ встретились у 6 % мужчин и 3 % женщин. Если к этому прибавлялось число случаев с симптомами хронического алкоголизма, шизоиды, иксифрении, подозреваемые постэнцефалитические и подобные им состояния, а также состояния недостаточности разного рода, то частота возрастала до 31 % у мужчин и 18 % у женщин. Если, наконец, причислялись также случаи с явными старческими психическими изменениями, общая заболеваемость в контрольном

материале возрастала до 41 % у мужчин и 27 % у женщин. Психическая заболеваемость была, следовательно, явно повышена среди социально опекаемой клиентуры.

Значительно больше социально опекаемых чем контрольных случаев находились ранее на стационарном лечении.

16. Также в контрольном материале была получена, следовательно, поразительно высокая частота заболеваемости. Вследствие того, что данные частоты построены частично на оценках, их трудно сравнить с результатами других исследований заболеваемости, чему приведены подробные примеры. В известных исследованиях были получены схожие или даже более высокие данные частоты распространенности разнообразных психических симптомов. Значительные расхождения, полученные в различных исследованиях психической заболеваемости, обусловлены, повидимому, большей частью тем, какие симптомы считались психопатологическими в соответствующих исследованиях. К тому же контрольный материал в настоящем исследовании весьма селективен (с преобладанием более пожилых лиц преимущественно из низшего социального слоя). Даже если могли бы быть произведены поправки на отклонения в возрастном составе, было бы поэтому вероятно трудно сделать некоторые выводы из здесь изложенных результатов о соотношениях среди нормального населения.

17. Психическая заболеваемость среди социально опекаемых была выше у мужчин чем у женщин. Это зависело исключительно от более высокой частоты психозов, тяжелых органических болезней головного мозга и хронического алкоголизма среди мужчин. Также повышенная частота заболеваемости мужчин среди контрольных случаев зависела прежде всего от наличия хронического алкоголизма, а также от наличия значительного числа недостоверных состояний повреждения. Фактор отбора мог также играть известную роль; косвенные влияния в виде неодинаковости суждения о мужчинах и женщинах не могут быть полностью исключены.

СОМАТИЧЕСКАЯ ЗАБОЛЕВАЕМОСТЬ

(ГЛ. 7)

18. В то время как число лиц, интервьюированных относительно соматического состояния, было лишь незначительно меньше среди контрольных случаев чем среди социально опекаемых, значительно меньшее число контрольных случаев подверглось физическому обследованию (примерно 30 % против примерно 85 % социально опекаемых). Данные интервью вместе со сведениями от больниц, поликлиник и частно практикующих врачей дали, тем не менее, достаточную основу для медицинского заключения о всех мужчинах и всех, кроме двух ($\approx 0,6\%$), женщинах из социально опекаемых, в то время как о 8 % мужчин и о 6 % женщин из контрольных случаев данные были недостаточными.

19. Распространенность соматических болезней в контрольном материале могла бы осветить вопрос о том, какое значение может быть приписано отбору проб на выбор. Относительно многих болезней могли быть произведены сравнения с результатами других исследований заболеваемости. Относительно большинства болезней существовало довольно хорошее соответствие

между частотой заболеваемости в контрольном материале и у нормального населения.

Это касалось, например, туберкулеза, астмы, нарушений функции щитовидной железы, диабета у женщин, ожирения (никаких явных отклонений, во всяком случае, не было обнаружено), органических болезней головного мозга, ишиаса, варикозного расширения вен, извы желудка и двенадцатиперстной кишки, грыжи, почечных болезней, кожных болезней, *polyarthritis chronica* (по крайней мере в некоторых сравнениях), мышечного ревматизма, уродств и др. Относительно некоторых болезней выявилась несколько повышенная частота заболеваемости в контрольном материале по сравнению с нормальным населением. Это касалось диабета у мужчин, а также невралгий, неврита и глазных болезней. Повышения не были однако значительны и могли быть, следовательно, случайными. При сравнении с данными обследования состояния здоровья в Стокгольме сердечные болезни у контрольного материала оказались более распространенными, особенно у женщин. Причина этого неясна. Известные факторы отбора могли играть свою роль; возможно также, что граница между здоровьем и болезнью была проведена по разному в каждом из исследований. Относительно некоторых болезней не могли быть найдены сравнимые данные заболеваемости среди нормального населения (напр. касательно кровоизлияния в мозг, тромбоза мозговых сосудов и наступившего дефективного состояния после таких болезней).

Относительно других болезней полученные данные частоты были настолько ненадежными, что достоверных сравнений нельзя было сделать (это касалось, напр., мигрени, понижения остроты слуха, гипертонии, хронических болезней органов дыхания, желчно-каменной болезни, *arthrosis deformans*). Часть болезней была представлена лишь единичными случаями и поэтому сделать какие либо сравнения не было возможно (напр. злокачественное малокровие, цирроз печени).

В той степени, в какой сравнения могли быть произведены, полученные данные частоты заболеваемости у контрольного материала совпадали таким образом, как правило, довольно хорошо с соотношениями у нормального населения; единственным заслуживающим внимания исключением была повышенная распространенность сердечных болезней.

20. Некоторые обычные болезни встретились значительно чаще у социально опекаемых. При обследовании лиц был обнаружен, таким образом, у 15,1 % мужчин и 5,4 % женщин еще неизлеченный туберкулез. Сердечные болезни встретились у 31,9 % мужчин и 23,2 % женщин, что было значительно выше, чем сама по себе высокая частота в контрольных случаях. Число страдающих гипертонией могло, разумеется, быть уточнено различным образом в зависимости от того, на каком уровне устанавливалась граница повышенного кровяного давления, однако, при всех прочих условиях, было налицо значительное повышение числа подобных случаев, в особенности среди женщин. Инвалидность встретилась у 27,1 % мужчин и 14,8 % женщин; в этом случае была включена инвалидность после несчастных случаев, после болезни, а также врожденные пороки развития. Частота ожирения была сильно повышена среди женщин. Диабет встретился у 6,6 % исследованных мужчин, в то время как для нормального населения приводится, как правило, менее 1 %, в некоторых сопоставлениях до 2 %.

21. Более умеренное повышение заболеваемости выявилось, далее, для обоих полов касательно инвалидизирующих нервных болезней (как напр. *sclerosis disseminans* и др.) и всей группы нервных болезней, вероятно также, относительно хронических болезней органов дыхания (хронический бронхит, эмфизема, бронхоэктазия) и почечных болезней. Число женщин, больных сифилисом, было, далее, по всей вероятности несколько повышено (среди социально опекаемых имелось больше бывших проституток чем среди контрольных случаев). Женщины обнаружили также повышенную частоту случаев астмы, нарушения функций щитовидной железы, а также *polyarthritis chronica*.

22. Относительно еще некоторых болезней были получены повышенные данные частоты у социально опекаемых, однако определенных выводов нельзя было сделать вследствие того, что повышения не были знаменательными или соответствующие данные среди нормального населения рассматривались как менее достоверные или трудно сравнимые. Это касалось для обоих полов мозгового кровоизлияния, глазных и ушных болезней вместе с понижением в высокой степени остроты зрения и слуха, болезней желчных путей, для мужчин также *polyarthritis chronica*, *reumatismus musculorum*, а также астмы, а для женщин — мигрени.

23. Относительно большого числа болезней не выявилось никакого повышения заболеваемости среди социально опекаемых. Это касалось некоторых острых и, как правило, быстро проходящих состояний как заразные болезни и аппендицит, быстро развивающихся болезней как злокачественные опухоли, болезней с умеренным, как правило, или вовсе никаким воздействием на работоспособность как атоксический зоб, кожные болезни и грыжа, а также некоторые длительные болезни с известным понижением работоспособности, как варикозное расширение вен, варикозная язва и язва желудка и двенадцатиперстной кишки.

24. Относительно некоторых болезней, наконец, сравнения между социально опекаемыми и, соответственно, контрольным материалом или нормальным населением не могли быть произведены. Это касалось отчасти менее обычных болезней, которые были представлены лишь единичными случаями (напр. *arthrosis urica*, цирроз печени, почечные камни), отчасти случаев с плохо уточненным диагнозом (напр. *arthrosis deformans*, ишиас), отчасти, наконец, болезней, которые были обойдены при обследованиях и интервью (напр. гоноррея, авитаминозы, болезни крови, острые инфекции дыхательных путей и органов пищеварения, цистит, болезни половых органов, болезни связанных с беременностью, доброкачественные опухоли, искривления позвоночника, плоскостопие).

25. В качестве резюме можно, поэтому, сказать, что социально опекаемые обнаружили повышенную заболеваемость большинством длительных инвалидизирующих болезней. Относительно некоторых других подобных болезней имелось на лицо также известное повышение, по опеределенного суждения в данной области не имеется. Относительно некоторых болезней, прежде всего быстро проходящих или быстро развивающихся болезней, вместе с тем болезней, как правило, лишь умеренно понижающих работоспособность, не было обнаружено никакого повышения заболеваемости. Относительно части болезней, наконец, никакого вовсе заключения не могло быть сделано, вследствие того, что о результатах было трудно судить или болезни выпали из рамок исследования.

26. Признаком более тяжелой заболеваемости среди социально опекаемых служило то, что большее число их чем контрольных случаев находилось на излечении в больницах в течение десятилетнего периода до отбора. За время семилетнего периода после отбора умерло также больше социально опекаемых чем контрольных случаев. Смертность, по сравнению с нормальным населением, была также резко повышена, особенно мужчин.

27. Одновременное наличие нескольких болезней было обычное у социально опекаемых. Как правило, можно было различить главную болезнь. В контрольном материале самыми обычными у мужчин были сердечные болезни, затем, в последовательном порядке, болезни органов движения, пищеварения и гипертония. Эти болезни встретились у каждого из 10–20 % больных. У социально опекаемых преобладали сердечные болезни, туберкулез и болезни органов движения, у каждого из 15–20 %. У женщин в обоих выборах на пробу преобладали среди главных болезней гипертония, сердечные болезни и болезни органов движения. Довольно ограниченное число болезней были, следовательно, полностью доминирующими с социально-медицинской точки зрения.

28. В общем около 90 % социально опекаемых и 70 % контрольных случаев оказались соматически больными при обследовании. В других исследованиях заболеваемости была обнаружена как большая так и меньшая частота чем у контрольных случаев в данном исследовании. Решающим при этом было то, как определялось понятие болезни и отбор материала. Сравнение с другими исследованиями имеет поэтому лишь ограниченную ценность в этом отношении.

РАБОТОСПОСОБНОСТЬ

(ГЛ. 8)

29. В качестве меры степени тяжести болезней применялось в этом исследовании их воздействие на работоспособность. Последняя распределялась по степеням посредством суммарной оценки, причем эффект психических и соматических факторов расценивался каждый в отдельности.

30. Работоспособность была значительно сильнее понижена у социально опекаемых чем у контрольных случаев. Среди социально опекаемых были только 4 % мужчин и 12 % женщин полностью работоспособными, среди контрольных случаев, напротив, примерно половина. Полностью неработоспособными были не менее чем 36 % мужчин и 10 % женщин из социально опекаемых случаев, но только 5 % мужчин и 3 % женщин из контрольных случаев. Таким образом болезни у социально опекаемых были не только более обычны, но также, в среднем, протекали более тяжело нежели у контрольных случаев.

31. Соматические болезни понижали работоспособность в среднем больше чем психические болезни.

32. Среди социально опекаемых мужчины были значительно более повреждены в психическом отношении чем женщины.

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APPENDIX.

I. Sex, family type and marital status on selection (actual distribution), and at the medical examination and of persons not physically or mentally examined.

Sample, sex, marital status	On selection					At medical examination				
	Single		Couples		Fam- ily type un- certain	Single		Couples		Fam- ily type un- certain
	no chil- dren	with chil- dren	no chil- dren	with chil- dren		no chil- dren	with chil- dren	no chil- dren	with chil- dren	
<i>Male paupers</i>										
Unmarried . .	52	—	10	1	—	53	—	7	1	—
Married . . .	2	—	31	33	—	3	—	35	30	—
Widowed . . .	13	—	3	—	—	12	—	4	—	—
Divorced . . .	13	1	6	1	—	15	—	5	1	—
<i>Female paupers</i>										
Unmarried . .	126	10	13	3	—	124	8	15	2	—
Married . . .	7	8	—	2	—	6	7	2	6	—
Widowed . . .	67	20	3	—	—	68	20	3	—	—
Divorced . . .	43	28	2	2	—	42	26	3	2	—
<i>Male controls</i>										
Unmarried . .	50	—	8	—	2	44	—	7	—	2
Married . . .	3	—	32	30	2	1	—	39	31	2
Widowed . . .	19	—	3	—	—	14	—	6	—	—
Divorced . . .	13	—	4	—	—	16	—	4	—	—
<i>Female controls</i>										
Unmarried . .	118	7	9	2	12	108	7	10	—	12
Married . . .	3	13	—	2	—	5	5	11	10	—
Widowed . . .	82	17	2	3	1	91	9	2	2	1
Divorced . . .	33	25	2	2	1	36	18	3	3	1
	Not physically examined					Not mentally examined				
<i>Male paupers</i>										
Unmarried . .	—	—	—	—	—	5	—	—	—	—
Married . . .	—	—	—	—	—	—	—	3	3	—
Widowed . . .	—	—	—	—	—	—	—	—	—	—
Divorced . . .	—	—	—	—	—	1	—	1	—	—
<i>Female paupers</i>										
Unmarried . .	—	—	—	—	—	2	—	—	—	—
Married . . .	—	—	—	—	—	—	—	—	—	—
Widowed . . .	—	—	—	—	—	4	1	—	1	—
Divorced . . .	1	—	—	1	—	1	—	1	1	—
<i>Male controls</i>										
Unmarried . .	1	—	1	—	2	4	—	1	—	2
Married . . .	—	—	5	1	1	—	—	7	3	1
Widowed . . .	1	—	—	—	—	2	—	—	—	—
Divorced . . .	2	—	—	—	—	2	—	—	—	—
<i>Female controls</i>										
Unmarried . .	2	1	1	—	10	6	1	1	—	10
Married . . .	—	—	—	1	—	1	—	—	1	—
Widowed . . .	2	—	—	—	—	3	—	—	—	1
Divorced . . .	2	1	—	—	1	2	1	1	—	1

II. Number of cases of physical illness.

Inter- national list no.	Diagnosis	At medical examination				At medical examination or previously			
		Men		Women		Men		Women	
		Pau- pers (3)	Con- trols (4)	Pau- pers (5)	Con- trols (6)	Pau- pers (7)	Con- trols (8)	Pau- pers (9)	Con- trols (10)
(1)	(2)								
002	Tuberculosis pulmonum	25	2	18	1	32	11	46	10
003	Tuberculosis pleurae	3	—	3	—	8	3	17	13
005	Tuberculosis lymphonodorum tra- cheo-bronchialium c. symp. . .	—	—	—	—	1	—	—	2
011	Tuberculosis intestinorum, perito- nei, lymph. mesenterii	—	—	1	—	—	—	1	1
012-013	Tuberculosis ossium et articularum	—	—	3	—	3	2	6	—
014	Tuberculosis cutis et telae sub- cutaneae	—	—	—	—	—	2	6	7
015	Tuberculosis systematis lymphati- ci	—	—	—	—	2	3	6	1
016	Tuberculosis uro-genitalis	—	—	1	—	1	—	4	2
018	Tuberculosis aliorum organorum .	1	—	1	—	1	1	1	—
020	Syphilis congenita	1	—	2	—	1	—	2	—
021	Syphilis recens	—	—	—	—	7	4	9	2
023	Syphilis cardiovascularis alia . .	—	1	—	1	—	1	—	1
024	Tabes dorsalis	1	—	—	—	1	—	—	—
025	Dementia paralytica	2	—	2	—	2	—	2	—
026	Syphilis alia cerebri et medullae spinalis	2	2	3	1	2	2	3	1
027	Syphilis tarda alia	—	1	1	1	—	1	1	1
028	Syphilis latens (seropositiva) . .	—	1	1	—	—	1	1	—
030	Gonorrhoea acuta	—	—	—	—	23	12	19	5
031	Inf. gonococcica urogenitalis chro- nica	—	—	—	—	1	1	3	1
032	Inf. gonococcica articuli	—	—	—	—	—	—	—	1
035	Inf. gonococcica: sequelae	2	—	1	—	2	—	1	—
036	Ulcus molle	—	—	—	—	2	—	—	—
040	Typhus	—	—	—	—	6	1	9	3
041	Paratyphus	—	—	—	—	—	2	—	1
045-048	Dysenteria	—	—	—	—	1	—	—	—
049	Intoxicatio alimentaria (botulis- mus)	—	—	—	—	—	1	—	—
052	Erysipelas	—	—	—	—	—	3	7	3
053	Septicaemia	—	—	—	—	—	—	2	2

II (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
072	Leptospirosis ictero-haemorrhagica	—	—	—	—	—	1	—	—
080	Poliomyelitis acuta	—	—	—	—	1	—	—	—
081	Poliomyelitis acuta: sequelae	—	—	—	—	3	—	—	—
088	Herpes zoster	—	—	—	—	1	2	14	4
110-117	Malaria	—	—	—	—	3	—	—	—
140-148	Neoplasma malignum cavi oris et pharyngis	—	—	1	—	1	—	1	1
150-159	Neoplasma malignum org. digest. et peritonei	—	1	1	—	—	1	4	1
170	Neoplasma malignum mammae	—	1	2	—	—	1	4	—
171-174	Neoplasma malignum uteri	—	—	2	1	—	—	3	9
177	Neoplasma malignum prostatae	1	1	—	—	1	1	—	—
180	Neoplasma malignum renis	—	1	—	1	1	1	—	1
190-191	Melanoma et neoplasma cutis	—	1	—	—	—	1	2	1
192	Tumor oculi bulbi	—	—	—	—	—	—	1	—
196	Neoplasma malignum ossium	1	—	—	—	1	—	—	—
201	Lymphogranulomatosis	—	—	—	—	1	—	—	—
204	Leuchaemia	—	—	1	—	1	—	1	—
193, 223	Neoplasma cerebri et medullae spinalis	—	—	—	—	1	—	1	1
241	Asthma bronchiale	5	6	18	3	5	7	22	6
250-251	Struma simplex et nodosa atoxica	—	—	11	6	—	—	15	7
252	Thyreotoxicosis cum(sine) struma	1	—	3	1	1	1	12	2
253	Myxoedema (hypothyroidismus)	—	1	5 ^a	—	—	1	5 ^a	1
254	Morbi thyreoideae alii (nature of struma unspecified)	—	—	—	—	—	—	4	1
260	Diabetes mellitus	11	5	6	5	12 ^b	6 ^c	6 ^d	5
272	Morbi hypophyseos (diabetes insipidus)	—	—	—	—	2	—	—	—
275	Laesio endocrina ovarii	—	—	1	—	—	—	1	—
287	Obesitas (includes also obesity of endocrine origin)	18	15	83	46	?	?	?	?
288	Diathesis urica	2	1	—	—	2	1	—	—
290	Anaemia perniciosa	—	—	2	—	—	—	2	(1)
298	Morbi lienis (splenomegalica)	—	1	1	—	—	1	1	—
330-331	Haemorrhagia cerebri	2	1	7	2	5	2	15	5
332	Embolia et thrombosis cerebri	1	1	—	2	1	2	3	4

^a Whereof 3 after thyroidectomy.^b Whereof 3 with gangrene, one with coma and one with cataract.^c Whereof one with gangrene, one with cataract.^d Whereof one with coma, one with cataract.

II (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
340	Meningitis	—	—	—	—	1	—	1	—
343	Encephalitis	—	—	—	—	—	—	1	—
345	Sclerosis disseminata	1	—	1	—	1	—	1	—
350	Paralysis agitans	—	—	1	—	—	—	1	—
351	Paralysis cerebialis spastica infantilis	1	—	1	—	1	—	1	—
352	Paralysis cerebialis alia (paralysis due to birth injury)	—	—	1	1	—	—	1	1
354	Migrän	1	—	7	3	3	—	22	9
355	Ataxia cerebellaris hereditaria	1	—	—	—	1	—	—	—
356	Atrophia musculorum progressiva	1	—	—	—	1	—	—	—
357	Syringomyelia	1	—	—	—	1	—	—	—
360	Paralysis facialis	—	—	1	1	—	—	1	1
361	Neuralgia trigemini	—	—	1	1	—	—	2	1
362	Neuritis brachialis	—	1	3	2	1	1	8	4
363	Ischias	2	2	5	6	19	14	23	20
364	Polyneuritis et polyradiculitis	—	—	—	—	—	1	—	1
366	Neuralgia et neuritis alia s. non definita	—	—	1	—	1	—	5	1
368	Alii morbi nervorum spinalium periphericorum	—	—	2	—	—	—	2	1
373	Iritis	1	—	—	—	3	—	1	—
374	Ceratitis	—	1	1	1	—	1	2	1
375	Chorioiditis	—	—	2	—	1	—	2	—
376	Aliae inflam. tractus uvealis	1	—	2	—	1	—	2	—
379	Alii morbi inflammatorii oculi	—	1	1	—	—	1	2	1
381	Ulcus corneae	—	—	—	—	—	—	1	1
382	Opacitas corneae	—	2	3	—	—	2	3	—
384	Strabismus	—	—	2	1	—	—	2	1
385	Cataracta	2	—	3	3	1	—	3	3
386	Ablatio retinae	2	—	—	1	2	—	—	1
387	Glaucoma	—	—	2	—	—	—	2	—
388	Alii morbi oculi	8	1	5 ^a	—	8	1	5 ^a	1
389	Amaurosis ^b (totally blind)	5	—	—	—	5	—	—	—
389	Amaurosis (nearly blind)	3	1	9	3	3	1	9	3
391-394	Otitis media, mastoiditis, alii morbi inflammatorii auris	2	1	4	4	14	6	26	17
395	Syndroma Ménière	—	—	—	1	—	2	—	2

^a Here are included three cases which are also recorded in another place (tumor oculi, retinitis pigmentosa, syphilis congenita with eye lesions).

^b Here are given firstly the number of totally blind persons, and secondly cases with greatly impaired sight, irrespective of cause.

II (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
396	Alii morbi auris et processus mastoidis ^a	—	—	—	—	3	1	1	1
398	Surditas	18	11	25	14	18	11	25	14
400-401	Febris rheumatica	—	—	—	—	6	2 ^b	21	15 ^b
402	Chorea rheumatica	—	—	—	—	2	1 ^b	6	1 ^b
410-422	Morbi rheumatici chronici, arterio-sclerotici et degenerativi cordis	53	22	76	56	53	22	76	56
440-447	Morbi hypertonici ^c	69	42	210	113	?	?	?	?
451-452	Aneurysma	—	—	—	—	—	—	1	—
453	Morbi arteriarum periphericarum (acrocyanosis, angiospasmus) .	2	1	—	1	2	1	—	1
456 ^d	Alii morbi arteriarum (aortit., endarterit)	—	—	1	—	2	—	1	—
460	Varices venarum extremitatum inf. (whereof with ulcus varicosum)	9	8	39	45	15	15	52	59
462.0	Varicocele scroti	2	—	7	9	2	1	19	15
463, 466	Phlebitis, thrombophlebitis et thrombosis venarum extremit. inf.	1	—	—	—	1	1	—	—
465	Embolia et infarctus pulmonis .	—	—	—	—	3	4	28	20
471, 513	Sinuitis acuta et chronica . . .	—	—	1	—	1	1	3	7
502.0	Bronchitis cum emphysemate .	5	—	2	1	5	—	2	1
502.1	Bronchitis chronica alia	5	6	10	5	10	6	16	10
518	Empyema pleurae	—	—	—	—	4	—	—	3
525	Alia pneumonia chronica interstitialis	—	—	1	—	—	—	1	—
526	Bronchiectasia	—	1	1	1	—	1	1	1
527.0	Collapsus pulmonis ^e	2	1	—	—	2	1	—	—
527.1	Emphysema, bronchitide non indicata	8	2	6	—	9	2	6	—
540	Ulcus ventriculi	1	3	—	2	13	10	13	9
541	Ulcus duodeni	4	2	2	1	9	5	8	3
543	Gastritis, duodenitis	10	3	7	10	22	14	28	24
544.0	Secretio gastrica laesa	1	3	5	8	5	6	18	13
544.2	Alia vitia functionis (dyspepsia, gastralgia etc.)	—	—	—	—	—	1	2	3

^a Including 2 cases which are also included in another sickness group (syphilis congenita and meningitis with ear complications).

^b One case with both febris rheumatica and chorea rheumatica.

^c For definition see page 200.

^d Cases of embolia and thrombosis (454) have been included in other sickness groups.

^e Not complicating tuberculosis.

II (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
545	Alii morbi ventriculi et duodeni	—	—	—	—	—	—	1	—
550-553	Appendicitis	—	—	—	—	17	14	26	29
560-561	Hernia abdominalis	12	7	2	2	22	17	13	6
570	Obstructio intestinalis (ileus) . .	—	—	—	—	2	—	2	—
571-572	Gastro-enteritis et colitis	3	3	16	8	6	4	33	14
573.2	Colon spasticum	1	—	—	1	1	—	1	1
573.3	Colitis membranacea	—	—	1	—	—	—	1	—
576	Peritonitis ^a	—	—	—	—	1	—	4	—
578	Alii morbi intestinorum et peritonei	—	—	—	—	1	—	2	1
580	Hepatitis acuta et subacuta . .	—	—	1	—	3	6	6	11
581	Cirrhosis hepatis	1	1	1	—	3	1	1	—
584-585	Cholelithiasis, cholecystitis . . .	—	—	3	2	7	5	35	20
587	Morbi pancreatis	—	—	—	—	—	1	1	—
590-594	Nephritis et nephrosis	7	1	7	1	11	3	26	13
600	Morbi infectiosi renum	—	—	1	—	1	2	13	6
601	Hydronephrosis	—	—	—	—	—	—	—	1
602	Calculus renis et ureteris	1	1	—	—	6	4	3	4
603	Ren mobilis	—	—	—	—	—	—	1	—
605	Cystitis	1	—	1	1	5	2	26	11
606	Alii morbi vesicae urinariae (haemorrhagia)	—	—	—	—	1	—	—	—
608	Strictura urethrae	1	—	—	—	2	—	—	—
610	Hyperplasia prostatae	5	—	—	—	8	2	—	—
611	Prostatitis	—	—	—	—	1	—	—	—
613	Hydrocele testis	—	1	—	—	—	3	—	—
614	Epididymitis	—	—	—	—	—	2	—	—
617	Alii morbi genitalium viri	—	—	—	—	1	—	—	—
620	Mastopathia chronica cystica . .	—	—	1	—	—	—	2	—
621.0	Mastitis acuta, extra lactationem	—	—	—	—	—	—	1	—
622-624	Salpingitis et oophoritis	—	—	—	1	—	—	8	14
625	Alii morbi ovarii et tubae	—	—	—	—	—	—	—	1
630	Morbi infectiosi uteri, vaginae, vulvae	—	—	—	—	—	—	3	2
631	Prolapsus uterovaginalis	—	—	1	2	—	—	3	3
633	Alii morbi uteri (endometritis hyperplastica etc.)	—	—	—	1	—	—	1	3
634	Menstruatio abnormis	—	—	3	—	—	—	18	4
642.3	Eclampsia gravidarum	—	—	—	—	—	—	—	1
645	Graviditas extrauterina	—	—	—	—	—	—	2	1

^a In accordance with the International Statistical Classification cases of pelveoperitonitis feminae, appendicitica, puerperalis etc. are classified under the various primary diseases.

II (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
670	Partus cum placenta praevia . .			—	—			1	—
674	Positione fetus abnormi etc. . .			—	—			2	1
675	Partus prolongatus s. alio modo complicatus			—	—			1	—
678	Partus cum alia complicatione .			—	—			1	1
682	Thrombosis puerperalis			—	—			1	1
684	Embolia pulmonis in puerperio .			—	—			1	—
689	Mastitis puerperalis			—	—			1	1
700	Dermatitis seborrhoica	—	—	—	—	—	—	1	—
701	Eczema	2	1	4	2	10	10	15	7
702-703	Dermatitis	—	—	1	4	1	3	2	6
704	Pemphigus	—	—	—	—	1	—	—	—
705	Casus erythematodes	—	—	—	—	2	—	1	1
706	Psoriasis et morbi similes . . .	1	1	3	2	1	1	4	2
707	Lichen planus	—	—	—	—	1	—	—	—
708	Pruritus et morbi similes	—	—	1	—	—	—	1	—
710.5	Acrodermatitis atrophicans Herxheimer	—	—	1	—	—	—	1	—
713	Hirsutismus	—	—	1	—	—	—	1	—
715	Decubitus	—	—	—	—	—	—	—	1
716	Alii morbi cutis	—	—	—	—	—	—	1	2
720-721	Arthritis acuta	1	—	2	—	1	1	3	1
722.0	Arthritis rheumatoides	6	3	33	15	8	5	46	20
723.0	Osteo-arthritis deformans genu .	5	6	25	18	5	6	26	18
723.0	Osteo-arthritis deformans al. art.	6	1	5	2	8	2	5	2
723.0	Osteo-arthritis deformans al. art.	1	1	1	2	1	1	1	2
723.1	Spondylarthrosis deformans . .	13	8	12	2	13	9	12	3
724-725	Aliae arthritides	7	3	10	6	11	4	14	11
726.0	Lumbago	1	—	—	—	9	7	6	8
726.1	Myofibrosis humeroscapularis .	—	—	1	—	—	—	1	—
726.2	Torticollis	—	—	—	—	1	—	2	—
726.3	Alius rheumatismus musculorum	5	1	4	1	16	3	11	11
727	Rheumatismus non definitus . .	—	—	5	2	3	4	15	6
730	Osteomyelitis et periostitis . . .	—	—	1	—	—	2	1	4
738	Alii morbi articulorum (periarthritides etc.)	2	—	2	2	6	—	4	7
741-742	Synovitis, bursitis, tendinivaginitis	1	—	—	1	1	1	3	4
744.2	Contractura fasciae palmaris Dupuytren	3	1	1	—	3	2	1	—
753.1	Retinitis pigmentosa	—	—	1	—	—	—	1	—
754	Maleformationes organorum circulationis	—	—	1	1	—	—	1	1
755	Cheilognathopalatoschisis	—	1	—	—	—	1	—	—
757.3	Hydronephrosis congenita	1	—	—	—	1	—	—	—
758.0	Dislocatio congenita coxae . . .	1	—	3	1	1	—	3	1
758.1	Chondrodystrophia? (dwarfism) .	—	—	1	—	—	—	1	—

III. *Distribution of various conditions at the medical examination by sex, age and family type.*

A. Persons mentally or physically examined

B. Persons admitted to hospital 1934–1943 inclusive.

C. Persons who died 1944–1950 inclusive.

D. Persons suffering from specific illness (principally those with an excess prevalence in the pauper population). For most physical diseases international list numbers have been given.

Illness and age	Men						Women					
	Paupers			Controls			Paupers			Controls		
	Sing- le	Coup- les with- out child- ren	Coup- les with child- ren	Sing- le	Coup- les with- out child- ren	Coup- les with child- ren	Single with- out child- ren	Single with child- ren	Coup- les	Single with- out child- ren	Single with child- ren	Coup- les
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
A												
mentally examined												
16–40	9	1	10	5	5	10	15	20	10	8	11	15
40–50	12	3	12	6	2	11	20	25	2	15	17	12
50–60	21	15	4	19	13	5	72	14	8	56	8	7 ^a
60–70	35	28	3	34	25	3	126	1	10	132	1	4 ^a
70–	—	—	—	2	3	—	—	—	—	17	—	—
physically exam- ned												
16–40	10	1	12	5	5	11	16	20	10	9	11	15
40–50	12	4	12	6	2	11	20	25	2	15	17	12
50–60	25	15	5	19	13	5 ^b	73	14	9	57	8	7 ^b
60–70	36	31	3	38	26	3 ^b	130	2	11	136	1	5 ^c
70–	—	—	—	3	4	—	—	—	—	17	—	—
B												
admitted to mental hospital 1934–1944												
16–40	1	—	4	1	—	1	1	—	—	—	—	—
40–50	5	1	1	—	—	—	3	—	—	1	—	—
50–60	1	4	1	—	—	—	4	1	—	1	—	—
60–70	3	1	—	—	—	—	6	—	—	2	—	—

^a In addition one case of uncertain family type mentally examined.

^b In addition one case of uncertain family type physically examined.

^c In addition two cases of uncertain family type physically examined.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Admitted to general hospital 1934-1944												
16-40	5	1	10	1	1	4	12	11	6	5	4	3
40-50	3	2	8	3	1	6	12	7	3	4	6	3
50-60	18	13	1	5	6	2	36	5	3	12	—	5
60-70	23	11	1	14	11	1	51	1	3	34	—	1
70-	—	—	—	2	—	—	—	—	—	2	—	—
C												
Died 1944-1951												
16-40	1	—	2	—	—	—	1	—	1	—	—	—
40-50	2	1	—	—	—	2	2	2	—	—	1	—
50-60	10	8	2	2	1	—	8	4	3	—	—	—
60-70	16	12	1	8	6	1	25	1	4	14	—	1
70-	—	—	—	1	1	—	—	—	—	3	—	—
D												
Schizophrenia (at medical examination or previously) ^a												
16-40	3	—	1	1	—	—	—	—	—	—	—	—
40-50	3	2	—	—	—	—	2	—	—	—	—	—
50-60	2	1	—	—	1	—	2	1	1	—	—	—
60-70	—	—	—	1	—	—	2	—	—	—	—	—
All psychoses (at medical examination or previously)												
16-40	3	—	1	1	—	1	2	2	—	—	1	—
40-50	4	2	—	—	—	1	5	5	—	1	—	—
50-60	4	4	2	—	2	—	6	3	1	3	—	—
60-70	3	2	—	3	1	—	14	—	—	5	—	1
Oligophrenia												
16-40	—	—	—	—	—	—	2	—	—	—	—	—
40-50	—	—	1	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	1	—	—	—	—	—
60-70	1	—	—	—	—	—	—	—	—	—	—	—

^a Including schizophrenia?

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Cerebral disease (at medical examination or previously)												
16-40	2	—	—	—	—	—	2	—	—	—	—	—
40-50	—	—	2	—	—	—	—	1	—	—	—	—
50-60	1	1	1	1	—	—	—	—	—	1	—	—
60-70	2	1	1	1	—	1	3	—	—	1	—	—
70-	—	—	—	—	—	—	—	—	—	1	—	—
Chronic alcoholism												
16-40	—	—	1	—	—	—	—	—	—	—	—	—
40-50	2	—	2	1	—	—	—	1	—	—	—	—
50-60	6	3	1	1	1	1	2	1	—	—	—	—
60-70	8	4	—	3	2	—	3	1	—	—	—	—
70-	—	—	—	2	—	—	—	—	—	—	—	—
Ixoid personality												
16-40	—	—	—	—	1	—	—	—	1	—	—	—
40-50	1	—	—	—	—	—	—	1	—	—	—	—
50-60	—	2	—	—	2	2	—	—	—	1	—	—
60-70	7	4	—	2	1	—	2	—	—	1	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Other uncertain lesional disorders (at medical examination or previously)												
16-40	—	—	1	—	—	1	1	2	—	—	—	—
40-50	1	—	—	1	—	—	5	—	—	—	—	—
50-60	4	—	1	1	1	—	2	1	—	1	—	1
60-70	4	—	—	3	—	—	15	—	—	1	—	—
Mental insufficiency (at medical examination)												
16-40	2	—	4	—	—	2	4	1	8	1	3	2
40-50	4	1	5	—	—	1	10	13	4	1	4	3
50-60	6	8	1	3	—	3	36	3	3	11	2	2
60-70	10	7	—	2	1	1 ^a	37	—	6	12	—	1
70-	—	—	—	—	—	—	—	—	—	2	—	—

^a In addition one case of psychic insufficiency but family type uncertain.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mental insufficiency (at medical examination or previously)												
16-40	5	—	6	1	1	3	9	7	13	3	3	3
40-50	6	2	5	—	1	1	11	16	4	5	8	5
50-60	8	10	1	5	2	3	50	6	5	20	3	3
60-70	12	11	—	4	3	1 ^a	64	—	7	34	—	1
70-	—	—	—	—	—	—	—	—	—	3	—	—
Senility												
50-60	—	—	—	—	—	—	2	1	—	2	1	—
60-70	19	13	2	11	6	1	44	—	5	20	—	1
70-	—	—	—	1	1	—	—	—	—	6	—	—
All persons with mental illness (at medical examination)												
16-40	7	1	4	—	1	3	9	11	2	—	4	2
40-50	11	3	8	2	—	2	12	16	2	1	4	3
50-60	17	14	3	9	4	4	42	7	4	14	3	2
60-70	33	21	2	19	9	1 ^b	94	—	9	38	—	3
70-	—	—	—	2	2	—	—	—	—	7	—	—
All persons with mental illness (at medical examination or previously)												
16-40	9	1	5	2	1	4	12	17	7	2	4	3
40-50	11	3	9	2	1	2	14	20	2	6	8	5
50-60	18	14	3	11	6	4	53	9	6	24	4	3
60-70	33	23	2	20	11	1	104	—	9	57	—	3
70-	—	—	—	2	2	—	—	—	—	8	—	—
Pulmonary tuberculosis 002 (at medical examination)												
16-40	2	—	4	—	—	—	7	2	1	—	—	—
40-50	1	1	5	—	—	—	3	2	—	—	—	—
50-60	5	2	1	—	—	—	1	—	1	1	—	—
60-70	1	2	—	—	—	1	1	—	—	—	—	—
70-	—	—	—	1	—	—	—	—	—	—	—	—

^a In addition one case of mental insufficiency but family type uncertain.

^b In addition one case of mental illness but family type uncertain.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Pulmonary tuberculosis 002 (at medical examination or previously)												
16-40	4	—	5	1	—	1	9	3	3	1	—	1
40-50	2	1	5	—	—	1	7	3	1	—	1	—
50-60	6	6	1	1	—	1	5	—	2	5	1	—
60-70	1	1	—	1	1	2	12	—	1	1	—	—
70-	—	—	—	1	1	—	—	—	—	—	—	—
Tuberculosis other forms 003-018 (at medical examination)												
16-40	—	—	—	—	—	—	—	1	—	—	—	—
40-50	1	—	—	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	2	—	—	—	—	—
60-70	—	1	—	—	—	—	1	—	—	—	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Tuberculosis other forms 003-018 (at medical examination or previously)												
16-40	1	—	1	—	—	2	1	5	1	—	1	—
40-50	4	—	2	—	1	—	—	1	—	1	3	—
50-60	1	—	—	1	—	—	9	1	—	2	1	—
60-70	—	1	—	2	—	^a 10	—	—	—	6	—	—
70-	—	—	—	—	—	—	—	—	—	2	—	—
Asthma 241 (at medical examination)												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	1	—	—	—	3	1	—	—	—
50-60	1	1	—	2	1	—	7	1	—	—	—	—
60-70	2	1	—	1	1	—	6	—	—	2	—	—
70-	—	—	—	—	—	—	—	—	—	1	—	—
Asthma 241 (at medical examination or previously)												
16-40	—	—	—	—	—	—	—	—	1	—	—	1
40-50	—	—	—	1	—	—	—	3	1	—	1	—
50-60	1	1	—	2	1	—	9	2	—	—	—	—
60-70	2	1	—	1	2	—	6	—	—	2	—	—
70-	—	—	—	—	—	—	—	—	—	2	—	—

^a In addition one case of tuberculosis with family type uncertain.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Hyperthyroidism 252 (at medical examination)												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	—	—	1	—	—
50-60	—	—	1	—	—	—	3	—	—	—	—	—
60-70	—	—	—	—	—	—	—	—	—	—	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Hypothyroidism 253 (at medical examination)												
16-40	—	—	—	—	—	1	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	4	—	1	—	—	—
60-70	—	—	—	—	—	—	—	—	—	—	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Previous thyroidectomy												
16-40	—	—	—	—	—	—	1	—	1	—	—	—
40-50	—	—	1	1	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	4	1	1	1	—	—
60-70	—	—	—	—	—	—	1	—	1	1	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Diabetes mellitus 260 (at medical examination)												
16-40	—	—	—	—	—	—	1	—	—	—	—	—
40-50	—	—	—	—	—	—	—	1	—	—	—	—
50-60	1	1	—	—	—	1	—	—	—	1	—	—
60-70	2	7	—	2	2	—	4	—	—	3	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Obesity 287 (at medical examination)												
16-40	—	—	—	—	—	1	—	4	—	—	—	1
40-50	1	1	3	1	1	—	2	5	—	2	4	3
50-60	2	1	1	4	2	—	26	3	2	10	1	1
60-70	2	7	—	3	3	—	37	1	3	21	—	1
70-	—	—	—	—	—	—	—	—	—	1	—	—
Chronic heart disease 410-422 (at medical examination)												
16-40	1	—	—	—	—	—	1	—	1	—	1	—
40-50	2	—	1	—	—	—	3	3	—	—	1	—
50-60	8	2	2	2	—	—	22 ^a	4	4	11 ^a	—	—
60-70	19	17	1	12	4	1	37	1	1	39	—	2
70-	—	—	—	1	2	—	—	—	—	3	—	—

^a Including one case of congenital heart disease.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Hypertension 440-447 (at medical examination)												
16-40	—	—	—	1	1	1	1	3	1	—	1	—
40-50	4	—	2	—	—	—	11	10	1	3	1	—
50-60	12	9	2	7	4	—	55	8	5	19	6	3 ^a
60-70	20	16	3	12	10	2	107	—	8	69	1	1
70-	—	—	—	1	3	—	—	—	—	8	—	—
Venous thrombosis 463, 466 (at medical examination or previously)												
16-40	—	—	—	—	—	—	—	1	1	—	—	—
40-50	1	—	1	—	—	—	1	4	—	—	1	—
50-60	—	—	—	1	—	—	1	3	—	3	1	1
60-70	1	—	—	2	1	—	17	—	—	14	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Varicose veins of lower extremities 460 (at medical examination)												
16-40	—	—	—	1	—	—	—	2	—	—	—	1
40-50	—	—	—	—	—	—	1	3	—	1	5	3
50-60	2	—	2	—	—	—	9	3	1	9	2	1
60-70	4	—	1	3	3	—	18	1	1	21	—	—
70-	—	—	—	—	1	—	—	—	—	2	—	—
Varicose ulcer 460 (at medical examination)												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	1	—	—	—	—
50-60	—	—	—	—	—	—	1	1	—	2	—	—
60-70	2	—	—	—	—	—	4	—	—	7	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Varicose ulcer 460 (at medical examination or previously)												
16-40	—	—	—	—	—	—	1	—	—	—	—	—
40-50	—	—	—	—	—	—	—	1	—	—	—	1
50-60	—	—	—	—	—	—	5	2	—	3	—	1
60-70	2	—	—	1	—	—	10	—	—	10	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—

^a In addition one case of hypertension but family type uncertain.

III (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Chronic diseases of the respiratory system 502, 525-527 (at medical examination)												
16-40	—	—	1	1	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	1	—	1	—	—	1
50-60	6	4	—	2	2	—	2	1	1	—	—	—
60-70	4	5	—	2	1	—	12	—	2	5	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Polyarthrits (chronic) 722.0 (at medical examination)												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	2	2	1	—	—	—
50-60	1	1	—	1	—	1	9	2	—	4	2	1
60-70	3	—	1	—	—	—	16	—	2	8	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Invalidity due to accident												
16-40	—	—	1	—	—	1	—	—	—	—	—	—
40-50	4	1	2	—	—	1	2	1	—	1	1	—
50-60	2	—	—	1	—	—	5	—	1	2	—	1
60-70	6	1	—	2	2	—	3	—	1	5	—	—
70-	—	—	—	—	—	—	—	—	—	1	—	—
Invalidity due to illness												
16-40	1	—	—	—	—	1	3	1	—	—	—	—
40-50	1	1	1	—	—	—	3	—	—	—	—	—
50-60	4	3	—	1	—	—	12	—	1	5	—	—
60-70	4	11	1	2	—	—	10	—	3	5	—	—
70-	—	—	—	—	—	—	—	—	—	2	—	—
Invalidity due to malformation												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	1	—	1	—	—	—
60-70	—	1	—	—	—	—	1	—	—	1	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
All persons with physical illness (at medical examination)												
16-40	9	—	8	1	1	5	14	12	6	1	3	7
40-50	8	3	12	2	2	5	19	15	2	9	10	7
50-60	25	14	5	14	9	2	69	14	9	42	7	5
60-70	35	19	3	30	21	3	125	2	11	112	1	4 ^a
70-	—	—	—	2	3	—	—	—	—	16	—	—

^a In addition two cases of illness but family type uncertain.

IV. *Sex, age, family type and disability, estimated with regard to physical and mental factors separately and together.*

4 = No disability
 3 = Some disability
 2 = Pronounced disability
 1 = Almost complete disability
 0 = Complete disability
 ? = Degree of disability not known

Sex, family type, age	Paupers						Controls					
	4	3	2	1	0	?	4	3	2	1	0	?
<i>With regard to mental factors</i>												
MEN												
Single												
16-40	4	—	1	1	2	2	4	—	—	—	1	—
40-50	2	4	—	6	—	—	5	1	—	—	—	—
50-60	10	3	3	2	2	5	16	3	—	1	—	1
60-70	4	13	9	6	2	2	21	4	5	2	2	5
70-	—	—	—	—	—	—	—	2	—	—	—	2
Couples without children												
16-40	—	1	—	—	—	—	5	—	—	—	—	—
40-50	—	1	—	2	—	1	2	—	—	—	—	—
50-60	2	6	—	3	3	1	10	2	1	—	—	3
60-70	8	10	5	1	4	3	18	5	1	—	—	3
70-	—	—	—	—	—	—	2	1	—	—	—	3
Couples with children												
16-40	4	3	1	1	—	3	9	—	1	—	—	1
40-50	5	6	1	—	—	—	10	—	—	—	1	1
50-60	1	3	—	—	—	1	4	1	—	—	—	—
60-70	—	2	—	1	—	—	2	1	—	—	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Family type uncertain												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	—	—	—	—	—	2
60-70	—	—	—	—	—	—	1	—	—	—	—	1
70-	—	—	—	—	—	—	—	—	—	—	—	—
WOMEN												
Single without children												
16-40	10	—	2	2	1	1	9	—	—	—	—	—
40-50	9	3	7	—	1	—	14	1	—	—	—	—
50-60	35	20	15	2	1	—	49	5	2	1	—	2
60-70	54	36	25	9	2	5	108	20	3	1	2	4
70-	—	—	—	—	—	—	10	3	1	2	1	1

IV (continued)

[illegible]

IV (continued)

Sex, family type, age	Paupers						Controls					
	4	3	2	1	0	?	4	3	2	1	0	?
Family type uncertain												
16-40	—	—	—	—	—	—	—	—	—	—	—	—
40-50	—	—	—	—	—	—	—	—	—	—	—	—
50-60	—	—	—	—	—	—	—	—	—	—	—	2
60-70	—	—	—	—	—	—	—	1	—	—	—	1
70-	—	—	—	—	—	—	—	—	—	—	—	—
WOMEN												
Single without children												
16-40	3	—	3	5	5	—	8	1	—	—	—	—
40-50	3	6	6	2	3	—	13	2	—	—	—	—
50-60	11	12	28	18	4	—	22	19	13	2	1	2
60-70	7	17	59	39	9	—	41	44	36	9	5	4
70-	—	—	—	—	—	—	2	5	7	1	2	1
Single with children												
16-40	11	3	4	2	—	—	10	1	—	—	—	1
40-50	13	6	2	2	2	—	13	3	—	1	—	—
50-60	1	7	5	—	1	—	4	4	—	—	—	1
60-70	—	1	1	—	—	—	1	—	—	—	—	—
70-	—	—	—	—	—	—	—	—	—	—	—	—
Couples												
16-40	6	2	2	—	—	1	12	1	1	—	1	1
40-50	—	2	—	—	—	—	10	1	1	—	—	—
50-60	2	1	3	—	3	—	5	1	1	—	—	1
60-70	—	2	6	2	1	—	1	3	—	—	—	1
70-	—	—	—	—	—	—	—	—	—	—	—	—
Family type uncertain												
16-40	—	—	—	—	—	—	—	—	—	—	—	1
40-50	—	—	—	—	—	—	—	—	—	—	—	3
50-60	—	—	—	—	—	—	—	1	—	—	—	2
60-70	—	—	—	—	—	—	1	—	—	—	—	5
70-	—	—	—	—	—	—	—	—	—	—	—	1
With regard to both physical and mental factors												
MEN												
Single												
16-40	3	—	1	2	4	—	3	1	—	—	1	—
40-50	—	2	1	7	2	—	5	1	—	—	—	—
50-60	—	3	2	9	11	—	11	5	1	2	1	1
60-70	—	2	8	14	11	1	12	8	9	3	2	4
70-	—	—	—	—	—	—	—	1	1	—	—	2

WOMEN

